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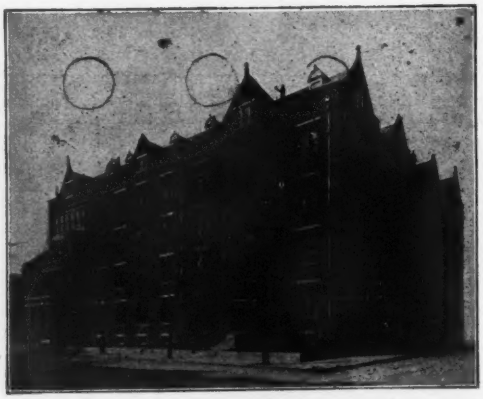

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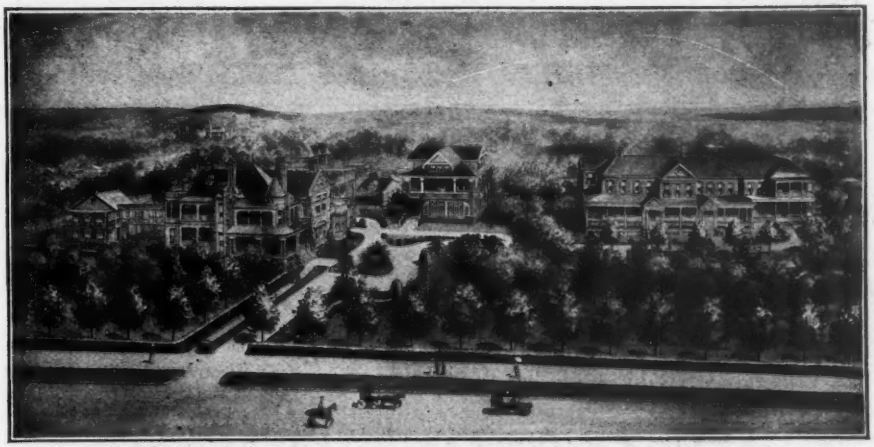

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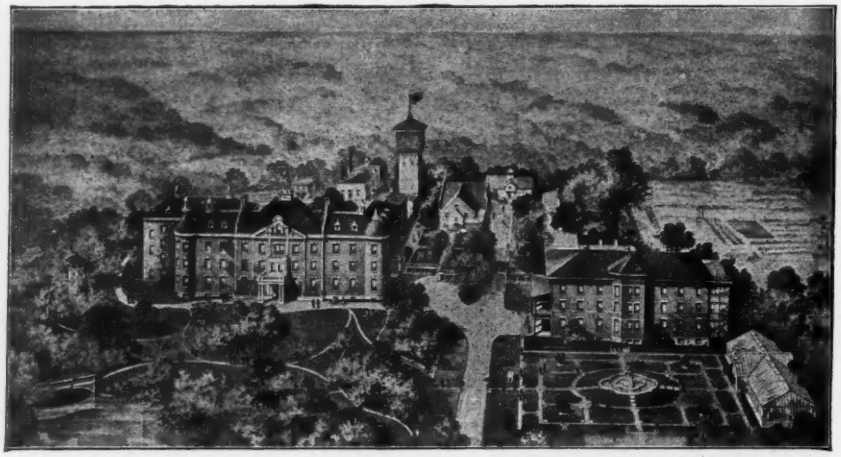

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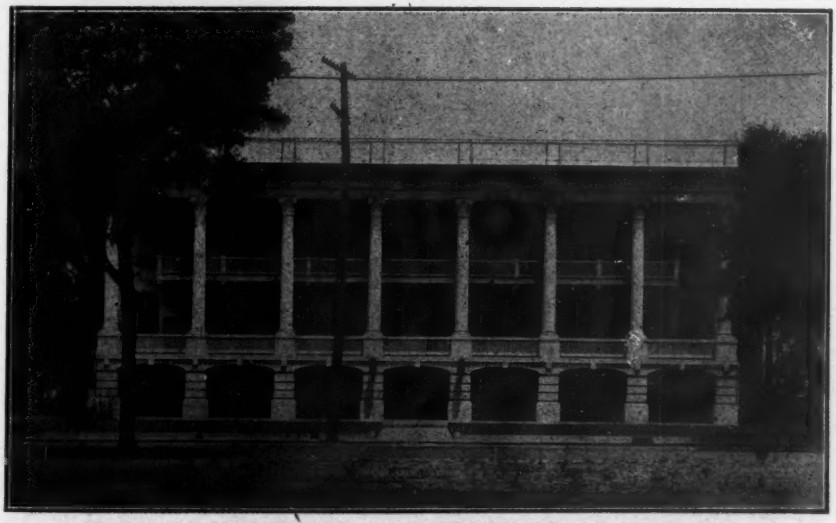

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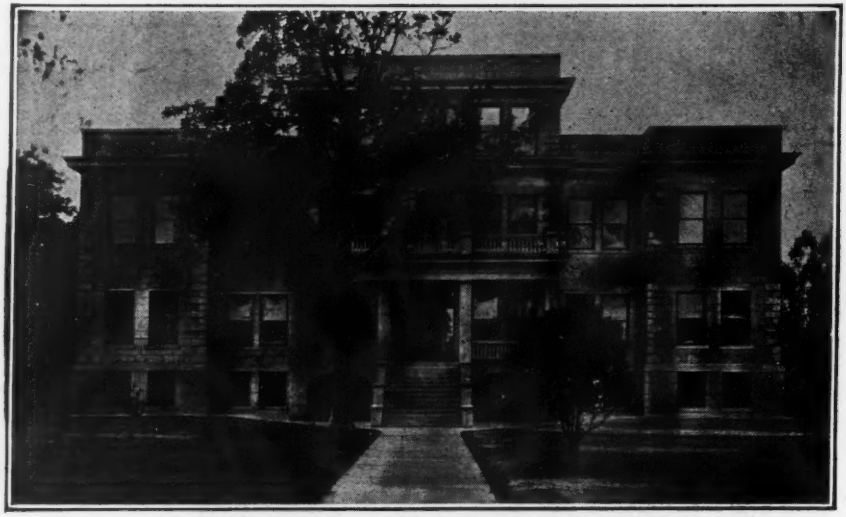

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ORIGINAL ARTICLES

ANNUAL MESSAGE OF THE PRESIDENT OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA.*

By LEWIS COLEMAN MORRIS, M.D.,
Birmingham, Ala.

Gentlemen of the Medical Association of the State of Alabama:

In compliance with the provisions of our constitution and in accordance with an established custom, it becomes my privilege to present to you today the annual message of the President.

The association is to be felicitated upon its visit this year in the home of its largest and probably its most powerful offspring. From the words of hospitable welcome, which we have just heard from the lips of those representing the City of Birmingham and the Jefferson County Medical Society, it is plainly evident that this association is being received in a spirit of the warmest filial affection. It is equally evident that this association retains for her husky daughter the fondest motherly interest and deep down in her heart has the most intense maternal pride in the wonderful growth and development of the Jefferson County Medical Society. May these sentiments of filial affection and loyalty on the one side, and maternal pride and interest on the other, continue to blossom and burgeon and bear rich fruit.

In reviewing the year's work of the association, it is probably just as well to consider each of the four departments separately:

1. In its capacity as the legally constituted department of public health.

2. As the agency through which the vital and mortuary statistics should be collected.

3. As a board of medical examiners.

4. As a scientific organization for the advancement of science and the promotion of social intercourse among its members.

Within the last year the work of the association and of the constituent county societies, acting as boards of health, has progressed most satisfactorily. There have been no serious epidemics within our limits, and the usual endemic and sporadic diseases have probably been cared for as well as ever before in our history.

The Rockefeller Hookworm Commission, under the charge of Dr. W. W. Dinsmore, and his competent corps of assistants, in conjunction with and with the assistance of the State Board of Health, has accomplished much during the last year. The campaign of educating the people of our State up to a realization of the seriousness of this disease, and the ease with which it can be cured, has been actively waged and the reports are most encouraging. The time is not far distant when a large portion of the citizenship of Alabama will be vastly benefited and their efficiency greatly increased through this agency.

Within the last year quite a considerable number of cases of pellagra have appeared in practically all sections of our State. This dis-

*Read before the Medical Association of Alabama, Birmingham, Ala., April 16-19, 1912.

ease has become so prevalent that it constitutes a serious menace to our people and presents a most perplexing problem to our boards of health for solution. Despite all of our efforts up to this time, the etiology and consequently the treatment and prevention of this disease remains obscure. It is to be hoped that some light may be thrown on this subject during our present meeting.

The crusade against tuberculosis has not waned during the past year. On the contrary, steady progress has been made. This is particularly true in Jefferson County where a tuberculosis camp has been established and constantly maintained for the care of indigent and semi-indigent cases. Much has been accomplished by this institution in relieving those who are affected with the disease, but a still greater amount of good has been accomplished in preventing the disease in others by removing the sources of contagion. Another great advancement has been the establishment at Wetumpka, during the last year, of a hospital for tubercular convicts. This great reform was originated and has been accomplished largely through the activity and effort of your former President, Dr. Blake. He not only brought this matter forcibly to the attention of the association in his message last year, but also personally and through other members of the association directed Governor O'Neal's attention to the deplorable condition that had been in existence for half a century. The result has been the building in Wetumpka, under the direction of Dr. J. T. Fowler, of a tuberculosis hospital, where the convicts suffering with this disease may be segregated and given the benefit of appropriate treatment. By this means, what was designated by Dr. Blake as the greatest single focus for the spread of consumption through the State, has been removed. By request of Dr. Fowler I have appointed a committee to inspect and make a report on this hospital during our present session. For various reasons the committee appointed for the purpose of selecting a site for the State sanitorium for tuberculosis, has not been able to decide on a location. This, I think, is most unfortunate, as there is at the present time, and has been for a number of years, a crying need for this institution. There has been in the treasury of the State $40,000 available for this purpose, and I should recommend that this association urge this committee to exercise the utmost expedition consistent with wisdom, in selecting and purchasing the site for this hospital. Let us, as a state and county boards of health, continue vigilant in combatting the advancement of the great White Plague, which is by far the largest single cause of death in our State.

Within the last year there has been a considerable increase in the number of cases of rabies within our State. There were 331 brains of animals examined in our laboratory for diagnosis in 1911, as against 29 during 1910, and there were 274 patients treated by the Pasteur method in 1911, as against 195 in 1910. When we consider that rabies is entirely a preventable disease, the foregoing figures for both 1910 and 1911 are entirely too large, and I should strongly recommend the adoption of muzzling ordinances in communities in which the disease prevails. If this means be persisted in, rabies can be entirely eradicated. In the meantime, however, while the disease is prevalent, it would be impossible to overestimate the amount of good that has been and is being accomplished in our laboratory in Montgomery, both in the examination of the brains of suspected animals, and in the treatment of individuals who have been bitten by animals, in which the diagnosis of rabies has been established. These examinations and the administration of the Pasteur treatment is carried on entirely at the expense of the State of Alabama, and I volunteer the assertion that if nothing else were done except this work, the State would be repaid for the money appropriated to the department of health. But, gentlemen, this is only a part of the good that is being done in our State laboratory. During 1911 there were 1,864 laboratory specimens examined, from all sections of Alabama, and

the doctors are just beginning to realize that there is no hamlet in the confines of our State so remote and no patient so poor who may not without price or cost derive the benefits of this modern and splendidly equipped laboratory. I can foresee that ere long this splendid work, the demand for which is increasing so rapidly, will have to be provided for on a very much larger scale than is at present contemplated.

Another advance that has been instituted by our State Health Officer within the past year has been the providing of free diphtheria antitoxin for poor people, and the material reduction in the cost of this serum to those who have to pay for it. Depots have been established in every county in the State where this antitoxin may be gotten at the expense of the State, upon the certificate of the physician that the patient needing it is unable to pay. This free antitoxin will, I am convinced, be the means every year of saving many human lives, which would have been lost otherwise. Before passing from the health functions of our association I wish to make a brief case report.

On the 24th of last February a man who had been exposed to the infected district of Texas, where cerebrospinal meningitis was epidemic, slipped through the quarantine lines and arrived in Talladega County on February 24. He became ill on the 26th and died on the 5th of March with typical symptoms of cerebrospinal meningitis. On account of the fact that this patient carefully concealed the circumstance of his exposure to this disease the diagnosis was not made until a short time before the patient died and prior to this time about forty people had been exposed. Immediately after the establishment of the diagnosis the County Health Officer, the County Committee of Health, the County Commissioners, the State Bacteriologist and the Probate Judge were called together and the following plan of quarantine and disinfection was decided on. Every person who had been exposed was quarantined for two weeks, during which time their mouths, noses and throats were disinfected twice a day by a physician. After the death and burial of the patient the scrapings in the yard around the house three inches deep were thrown into the house, which was burned along with the furniture, mattresses, etc. This method of disinfection was employed because on account of holes in the roof, fumigation with formaldehyde was impossible. No other cases developed. I mention this case in order to give my official commendation to the prompt measures instituted by the Talladega County health authorities, which may have averted an outbreak of this terrible disease in our State, and certainly prevented a local panic. Such instances as this demonstrate beautifully and conclusively the wonderful efficacy of our system of organization in protecting and safeguarding the health and lives of our people.

And now, gentlemen of the association, I come with many misgivings to a consideration of the work of our association in collecting vital and mortuary statistics.

In reviewing the annual messages of the presidents of this association for the last twenty or twenty-five years, I find there has been scarcely one which has not emphasized the importance of this work and appealed to the members of the association to do their duty in this respect, and yet after twenty-five years there is very slight improvement. Wherein does the trouble lie? Is it the fault of our organization that we are unable to collect these statistics? I believe not. Is it because our doctors, and particularly our county and municipal health officers, fail to recognize the importance of this work, and the latter also fail to appreciate the fact that they are paid to do it? I think so. If this be true, then something must be done to awaken us from our lethargy. The State of Alabama is appropriating thousands of dollars annually in order to have these statistics collected. The expenditure of this money and the details of this work is left entirely to the medical association of the State of Alabama. Our Legislature has

passed laws providing quite adequate salaries to our county and municipal health officers and leaves the selection and election of these officers to the organized medical profession. Our Legislature has also passed laws, recommended by us, which gives our health officers authority to force physicians to make these reports. Gentlemen, the State can do no more, and it has a right not only to expect but to demand better work than has been done in the past. Not only do we fail to keep faith with the State of Alabama by our failure to perform this duty, but our organization is criticised and blamed as is shown by the following extracts from a letter recently written by the Chief Statistician of the U. S. Bureau of Census: "The Alabama law is fundamentally defective and will never be capable of giving satisfactory results." "As soon as you (meaning the M. A. S. A.) make up your mind to discard the present worthless county system and put in a law based on the principles of the model law approved by the A. M. A. and this bureau, we shall be very glad to cooperate with all the means at our command." Another: "I am anxiously awaiting the time when Alabama will amend her law, or introduce a radically different one, so that the State may regain her old position as a leader of registration work in the South." "The old position as a leader of registration in the South," referred to, was achieved under our present system and at a time when our health officers were very inadequately paid and when the State appropriation was much less than at present. Why is it that the same organization with better paid officers and a larger appropriation does not get any better results? I think it perfectly natural under these conditions, that any one who is not familiar with the details of our organization, should blame the system, and that this is being done very generally is conclusively shown by the quotations just cited from the letter of Dr. Creasy L. Wilbur, Chief Statistician of the United States. So you see that in our failure to execute the laws which our Legislature has made at our instigation, for the specific purpose of affording us the means of collecting these statistics, we are laying our association open to serious and dangerous criticism. I would recommend that the State Statistician in Montgomery keep in active touch with every county and municipal health officer in the State, and when reports come in that are manifestly and obviously incorrect and incomplete, that the authors of these reports be communicated with setting forth the defects and errors. If, after this is done, the reports do not improve, I would recommend that the President and the Secretary of the county society, by which the health officer was elected, be notified of his failure to comply with the State laws regarding the collection of vital and mortuary statistics, and that charges to that effect be preferred against him. I feel sure that such a course as this would very rarely be necessary, but it might be the means of overcoming the apathy and indifference which exists in some quarters.

I would further recommend that this association as a whole, and that its members individually, use their influence to secure the adoption in municipalities of 500 people or more, of ordinances requiring a death certificate for either burial or shipment of a corpse. It is my confident belief that if the members of this association can be aroused to a realization of the importance of carrying on this work, Alabama can be placed on the mortuay registration area within six months and our percentage of registration increased from 60 per cent to 90 per cent or over.

There are only words of the highest praise and commendation to be said of the work of our Board of Medical Examiners. There have been 160 applicants examined since our last meeting, of which 91 passed satisfactory examinations and were granted licenses to practice medicine and surgery in Alabama. The percentage of failures is high, and I dare say the standard of our board is almost, if not quite, as high, as any in the United States. If this be true, then our examining board

might enter into an agreement with the examining board of other States having equally high standards and requirements, that a certificate granted in any one of these States would entitle the holder to practice in any of the others. In other words, our Board of Examiners might establish *reciprocity* with the boards of other States having equal requirements and equally high standards. As I understand it, the purpose of examining boards is to protect the public from men who, through ignorance or lack of professional knowledge and training, are not qualified to practice medicine, and not for the purpose of penalizing reputable and capable physicians, who have already demonstrated before a similar board having equal requirements and standards that they are competent to practice. In all justice, equity and fairness, I cannot see why a man who has passed a satisfactory examination before a State board having equal requirements with ours, whose character and standing is certified to by his State board, should not be accepted by us, whether that State reciprocate with us or not.

I have the utmost confidence in the wisdom, loyalty and fairness of our State Board of Censors, and I would recommend that this association place itself on record as favoring reciprocity with such States and under such conditions and with such safeguards as may be decided on and considered expedient by our State Board of Censors.

And now I come to what are the most delightful and certainly very useful functions of our association, namely, the scientific and social features. For a number of years I have been a very close reader of our Transactions, and I believe from a literary and scientific standpoint they will compare favorably with those of any State in the Union. They constitute a great storehouse of diversified information on medical subjects. I trust that you will approve the scientific feast that has been prepared for you at this meeting, and I feel sure that the volume of Transactions of 1912 will maintain the high standard that has been established in the past. It is my fondest hope that our reunion this year may be the most pleasant in our history, socially and scientifically.

A few weeks ago I received the following letter from Dr. L. H. South, Secretary of the Association of State Secretaries and Editors:

"The American Medical Association has appropriated a fund for the annual meeting of the Association of State Secretaries and Editors. This meeting will be held on Monday evening preceding the general session, and the objects of this association are to cultivate a closer relationship among state associations; to establish improved and more uniform methods of conducting business; to promote the interest of State journals and to develop the best method of conducting them and by the cooperation with the officers of the American Medical Association to promote their welfare in these United States. In the past many States have voluntarily paid the actual expenses of their Secretary to this meeting. I write to ask in what manner I should bring this subject before your State society, so that you will see that your Secretary comes and his actual expenses are paid. Please let me hear from you at your very earliest convenience."

I wrote Dr. South that I would bring the matter before the association, and I would recommend that Dr. Baker be requested to attend this meeting at the expense of the association.

You are all so familiar with the objects and purposes of the "Owen Bill" that it is unnecessary to consume valuable time in reviewing it. I wish to recommend that this association express itself as favoring this bill and that our Secretary be instructed to send lettergrams to each of our two Senators and to each one of the Alabama representatives in Congress, setting forth this fact and requesting that they use their influence to secure its passage.

Since our last meeting the Grim Reaper has claimed two of the most beloved and faithful

fellows. I refer to Dr. W. M. Wilkerson and Dr. Rhett Goode.

On December 29, 1911, the following letter was received from Dr. T. L. Robertson, of Birmingham:

"Owing to the failing condition of my health, I herewith tender to you my resignation as a member of the Board of Censors of the Medical Association of the State of Alabama.

"In doing this I desire to say that I regret to thus sever my connection with this work, and that if my service has been of any use to the Association, it has given me pleasure to contribute what I could to the upbuilding of our splendid organization, and I retire with the kindliest feeling for it and the best wishes for its continued prosperity."

I wrote Dr. Robertson expressing profound regret that he should find it necessary to take this step. The association owes Dr. Robertson a debt of gratitude for his faithful service of thirteen consecutive years on the Board of Censors. I appointed Dr. W. Groce Harrison, of Birmingham, to fill the vacancy on the board created by Dr. Robertson's resignation.

And now, in conclusion, gentlemen, I want to express to you my profoundest appreciation of your loyal cooperation and support during my incumbency and to bespeak your kind indulgence during the remainder of this session.

THE GRADUAL ELIMINATION OF THE PREVENTABLE DISASTER FROM SURGERY.*

By MAURICE H. RICHARDSON,
Boston, Mass.

I feel deeply grateful that I have been asked to give this address. To be summoned from Massachusetts to Alabama to speak before an audience of Southern men and women seems to me a signal honor, and I shall do my best to deserve that honor, knowing well my incapacity.

In the selection of a subject upon which to speak in honored memory of a beloved physician, I was at a great loss. I wished to say something that would interest the physician as well as the surgeon, and, in a way, the patient as well. I finally decided, though with many misgivings, to take as my text the occasional disaster, because we all are more deeply interested in its total elimination from the possibilities of our treatment than we are in almost any subject other than that of preventive medicine—the one medical science which, in its full success, would make all questions of disease and its treatment superfluous.

In the first place, I would pay my respectful homage to the great man (Dr. Jerome Cochrane) in whose honor this annual lecture has been established. It is by holding in grateful memory the teaching and the influence of its great men that our profession is not only true to these teachings and to that influence, but in profiting by a noble example it rises to higher planes of honor and usefulness. It is to the virtues of the good physician, to his life of self-sacrifice, generosity and charity in its highest sense that our profession owes all that is best in lofty professional endeavor and attainment.

From the beginning of my medical studies I have been impressed by the influence of the men under whom I have worked. They were all great—two of them at least were very great; one throughout the world, lay as well as medical, the other throughout the surgical world. One was Henry J. Bigelow, the other Oliver Wendell Holmes. All the rest of those to whom I looked for instruction and example

*The Jerome Cochrane Address before the Medical Association of the State of Alabama, April 16-19, 1912.

were prominent in the medical and surgical community of Massachusetts and New England, though they were not widely known elsewhere.

In reviewing my professional and social life I have tried to find out just what the influence of these men has been in forming the character of their pupils—what the influence of their example has been in stimulating adherence to that example; what their effect upon the medical community as a whole. Do I not recognize at home in my colleagues and myself the beneficial effects of their teaching and their splendid lives, just as you do here in the South—the leaven in professional uplifting that is the real monument to your own great men? Just as you have benefited by the life and example of Jerome Cochrane, so did we benefit by the splendid intellect of Bigelow, by which present generations of surgeons, through transmitted teaching, have become better surgeons; the bright wit of Holmes which made us all love anatomy and inspired us to pursue that study as one of the best preparations for clean and beautiful technical operating; the wonderful skill of Hodges, whose swift and precise dissecting was the envy of all his followers; the painstaking and accurate work of Porter, as sure and safe as operative technique can be.

Then there was the alleviating influence of all these men and of many others upon the very basic principles of our profession; the example of charity toward others, and the close adherence to the Golden Rule—the very foundation of our treatment of our patients and of each other.

It is the example of such men as the one whom you honor here that we must strive with might and main to follow. And, as it is to the example of the higher virtues that we owe our bright shield and untarnished armor, so it is to the enthusiasm of our great men in purely professional fields that we owe that tremendous advance in medicine and surgery that permits us to consider such ambitions as the "Total Elimination of Disaster" in our profession. Once the suggestion of the germ theory of disease was made, once the great Lister published his antiseptic treatment of wounds, the front ranks of the medical and surgical profession were turned toward fields of endeavor and accomplishment that thousands of eager followers have made fields of triumph, each greater than the preceding—fields, I say, in which the possible victories are much greater than those of yesterday, much less than those of tomorrow.

I sometimes think that the possibilities of discovery are about exhausted, that we are at the end of the phenomenal progress of the last generation, but who knows but that preventive medicine will make unnecessary much of the brilliant surgery of the present; or, if prevention fails, non-operative measures will be discovered to make the surgeon's knife superfluous.

In the beginning, to clear the decks for action, as it were, let us look at the matter squarely and admit to ourselves at least the truth regarding surgical failures and their real underlying causes.

They are:

(1) Errors in diagnosis;

(2) Inadequate indications for operation;

(3) Insufficient weight given to contraindications;

(4) Faulty aseptic technique;

(5) Unskillful dissecting technique.

If the foregoing causes for failure do not exist; if there is no error in diagnosis; if the indications and contra-indications are adequately weighed; if the technique is perfect and the dissecting swift and sure, there remain to be considered:

(6) The unforeseeable and unpreventable contingencies of surgery;

(7) Human fallibility showing itself in error of diagnosis; inadequate weighing of indications and contraindications; faulty asepsis; tedious and unskillful dissecting technique.

Most surgeons, probably all surgeons, without reference to their card catalogue or records, can recall—can they ever forget—the

principal disasters of their whole experience. I do not mean all the deaths and failures, by any means, but only those which either prick the conscience or recall especially distressful circumstances. Fortunately for our peace of mind, we can forget most of these experiences which at the time seem hard to bear, but in which there was no sting of carelessness; some can never be effaced from our memory; indeed, the greater the effort to forget, the more persistent the memory.

While we are considering the preventable disasters in the cold light of truth, let us not deceive ourselves in the least. Let us apply the rod of self-punishment without flinching, and try might and main to correct, as far as possible, our corrigible faults. I speak of the elimination of the preventable disaster as if we had arrived at that height of perfection at which there are no longer any disasters, or but very few, to eliminate. This is true of those diseases which, under the most favorable conditions, through the skill which knowledge and experience give, permit complete and permanent cure with only those dangers which are unforeseeable and therefore unpreventable.

In those communities which have been impressed by the importance of early diagnosis, and which are highly skilled in the early recognition of diseases that can be cured permanently and safely only by early operation—in such communities, I say, early recognition and operation make the plane of operative success exceedingly high; make the ratio of preventable disaster exceedingly low; make surgery seem to many of us almost incapable of further improvement.

We surgeons, I sometimes think, have cultivated technical skill to a degree of perfection that seems impossible of much improvement, but I dare say that the future will add measures and methods of a beauty and success of which we can have no adequate conception. But the elimination of this ratio of error, this percentage of failure still remaining, is the hardest accomplishment of all. It is the constantly diminishing contingency of error of which the astronomer and the physicist speak in making allowances for the success of their observations. That contingency of error exists in all our dealings with our patients, from the very first professional visit until they are discharged well or improved, unimproved or dead.

In trying to help in my small individual way to trace and describe, as far as my experience permits, the errors that are insuperable, and, through human fallibility, unpreventable, I must consider all the contingencies of surgery, from the diagnosis to that complete restoration of health which the lesion permits.

The whole history of a case is full of the contingencies of error, but by far the most serious and prolific is the error of the failure of recognition.

I am trying to show where we must devote our greatest efforts for the elimination of failure. Is it not in the detection of diseases and the realization of the need of remedy?

With the work that is going to make our profession superfluous, with the science that transcends in importance every other medical possibility, and makes all these discussions of medicine, surgery and the specialties—all considerations of methods and means—unnecessary; with the science of preventive medicine, my remarks today have nothing to do. I take things as they are, and, taking things as they are today, the first and most important consideration in the elimination of disaster is the education of the layman in the symptoms of the common surgical emergencies and diseases; the second consideration is the education of the man whom this early recognition makes respond. The most prolific source of disaster, by far, is in the failure of early recognition of necessity.

Unless the patient is delivered to the surgeon within a reasonable time of the onset of the disease, there is no reasonable hope of cure. If the surgeon, highly educated and with special experience in surgery, fails in the application of his remedy because of too-late recog-

nition, it is absolutely unreasonable to call him blameworthy. But I am not here to use the word *blame*. We as a profession all do our best, as I well know; and we are all trying with might and main to do better; but we are all blamed by the layman when disasters occur. How are we to avoid them?

The very first thing is the education of the layman. The Harvard Medical School has undertaken the task by establishing a series of public lectures upon medical and surgical subjects, for the purpose of telling the layman in plain language truths which the layman ought to know. One effort in these lectures is to allay popular but groundless fears; another, quite as important, is to tell the layman when symptoms mean something. One of the speakers entitled his lecture, "When Should the Layman Send for the Doctor?" And he told the audience when it was important to call the doctor and when it was not. Other lecturers have striven to educate the public in such a way that the disastrous delays of diagnosis may be eliminated by a better popular idea of what symptoms may mean, as well as what they probably do not mean.

It is idle to say that the failure of recognition on the patient's part is not the most prolific source of disaster through neglected opportunity; but a close second, and, I sometimes think, an easy first, is the failure of the practitioner to recognize impending danger.

Communities differ in their ideas, just as individuals in communities differ. My observation goes to show that certain diseases are now recognized and sent to the surgeon promptly, all over the United States. In my own New England, and I have no doubt it is the same in Alabama, appenditicis is recognized and operated upon with the most commendable promptness. I seldom see a bad case of appendicitis. Cases in which the surgeon used to be called before a spreading peritonitis had begun, but when the appendix was at the verge of perforation—cases which all required drainage—are now interpreted by layman and physician in time to permit closure of the wound and a ten-day convalescence. This means that the urgency of abdominal pain is appreciated, not only by the general practitioner, but by the patient himself.

Abdominal pain, from any acute lesion, means timely opportunity for diagnosis, early surgical intervention and the elimination of the most prolific cause of surgical disaster since the introduction of asepsis and modern abdominal surgery.

It seems to me that it is wholesome for us to review what has been accomplished by our profession since the description and naming of appendicitis by Fitz led to the early diagnosis of all kinds of septic abdominal emergencies, lest we forget what these early symptoms used to presage. Coming generations of medical men—and even the present generation—do not realize or appreciate what we older men used to encounter in our daily practice. For ten years or more after Fitz made, in Philadelphia, his memorable address upon the appendix, my surgical work was very largely upon the gangrenous appendix. Very few of us were entrusted, by the general practitioner or by the patient, with the management of acute appendicitis, partly because of the general ignorance and suspicion, but more because of the forbidding mortality in those days when we thought that we could predict the prognosis. Now that the layman calls for help at the very onset of abdominal pain, now that the abdominal pain is rightly regarded as adequate proof of some serious abdominal lesion, the brilliant results of early operation have put these important cases in the hands of the local surgeon, so that we see less and less of the distant operative case, as we prefer, when called, to advise operation by the local surgeon, lest precious time be lost in waiting for us to reach the patient.

But, as I say, it is well to recall and realize the truths demonstrated a generation ago. The emergencies are just as great; the pathology is just as grave; the prognosis under delay is just as gloomy as it used to be, and the present and coming generations should remember this. The tendency of progress is through disaster.

Disaster leads to knowledge; knowledge to caution and the realization of the importance of timeliness. Universal success under timely surgery leads to doubt as to the real need for timely intervention. History then repeats itself. The neglect of the lessons of the past brings up, with a round turn, the surgeon who *forgets*, and he looks upon delay, as he should, with dismay. Then timeliness comes to its own with renewed appreciation of its importance, and the plane of successful intervention rises with renewed demonstration. I say it is fitting to review the beginnings of appendicitis and other abdominal emergencies, lest we forget the importance of the earliest possible diagnosis and intervention.

But, in spite of history, knowledge and experience, we find our greatest mortality in the delayed diagnosis and operative treatment of the acute emergency.

That the number of cases of appendicitis, like the number of cases of strangulated hernia, has been reduced, the one by the interval operation, the other by the radical cure, no active practitioner will deny. In the limited experience of one man a few demonstrations of the fact have occurred. How many cases of appenditicis have been prevented by the removal of the appendix in health, I have no means of telling, for I do not know how many times I have taken out the appendix during other operations within the abdomen; but I recall two recent cases, in one of which, at an ovariotomy fifteen years ago, the accessible appendix was left. In the other, the appendix was left at an operation for gall-stones. Both patients later required appendectomy for acute gangrene. In 2,000 appendectomies, more or less, without mortality, most of them presenting symptoms that justified the operation in the period of health, I have never seen any immediate evil results, barring one case that was fatal after operation from streptococcous paro-itis, and I have seen no remote evils whatever. How many of these cases would have proved grave, I cannot say; but, taking the community as a whole, the number of patients protected against appendicular infection, gangrene and peritonitis must be considerable.

We all know, of course, that many patients have their first grave infection of the appendix without warning. It is among these that the disasters occur; but even in these cases the present practice of medicine and surgery is so effective that the rule is operative and immediate closure of the abdomen without drainage —methods amply justified by the pathology. The infection, confined to the interior of the appendix, is recognized by the well-defined and conspicuous diagnosis that the history of appendicitis has made almost universal.

As the history of appendicitis has diminished disaster by early intervention, so has that of other acute emergencies, notably that of perforation of the stomach, gangrenes of the gall-bladder, perforation of the intestines, mechanical gangrenes of the intestines, torsions of tumors and of organs, haemorrhages free and confined, and acute pancreatitis. The whole chapter of acute abdominal emergencies has been written. It may have to be revised and rewritten, but the whole thing is there, and requires, it seems to me, but few modifications.

With this history and with our skill and experience in abdominal diagnosis and treatment, why is it that in chronic abdominal diseases our disasters are legion and our results deplorable? The reason is, in a word, that chronic abdominal diseases lack the element of immediate necessity. In emergencies the necessity for surgery is glaring and compelling, even to the patient and his friends; in the chronic cases there is no spur to action. "Manana" is the cry—tomorrow, always tomorrow. "Let the diagnosis wait upon accuracy; let the indications be without flaw; let the operation be deferred until it cannot be avoided."

I am reminded of the medical *ukase* in appendicitis when I was twenty-five years younger than I am now: "If the patient goes into collapse, send for the surgeon." And now: "Do not operate until medical treatment has failed in, say, diseases of the stom-

ach." I can imagine the surgeon's address twenty-five years hence. Will not the present rule appear then like that of my medical friend's in 1886?

Today, as I have become firmly convinced, if we are to succeed in the surgery of the stomach—especially gastric cancer—we must operate when the diagnosis is but a suspicion; we must not wait until the failure of medical measures and the unmistakable demonstration of cancer make successful operation and permanent cure impossible. In benign diseases of the stomach the outlook is not, of course, anything like as bad; but even then delay until the patient is on the verge of the grave is none too prolific a source of success. In gall-bladder lesions that are non-malignant the outlook can never be as bad as in delayed operation for gastric lesions, but in these we have an occasional and well-nigh unavoidable and unforeseeable disaster. Exploration under a suspected diagnosis of gall-stones will eliminate almost every gall-bladder disaster that we encounter.

Now where is the surgeon and who is he that has not seen in his own work the glaring truth of what I say? And what makes for the gradual and permanent elimination of disaster in chronic abdominal diseases? Is it not knowledge of the truth early enough to avoid the insuperable obstacles that are raised by delay? Is it not early diagnosis, and diagnosis early enough for proper remedy? When we see, through knowledge, the inevitable course of gastric cancer, are we wise or foolish to wait until our suspicion of cancer is absolute certainty?

Does the mariner off a rocky coast in a fog, with a gale of wind behind it, come about at once and make for the open sea, or does he wait until he has seen the surf? The wise seaman takes no chances. The good ship Jason, heavily laden, from Calcutta, approached Cape Cod one wild day in 1891, as I was lying in my shooting-box. She was 120 days out, and within sight of the three Nauset Lights. A stiff breeze was blowing the ship home, and she was bowling along Cape Cod far too near shore, as we all thought. Did the Captain wear ship and head for the open sea lest he get caught too near the sands? No; he was in a hurry to get home. The wind suddenly veered to the no'theast, and blew directly upon the shore. Too late the captain tried to wear ship, and twenty-eight souls were lost in the wreckage and the breakers. The safe captain is he who sees disaster and provides for it by avoiding all possibilities. So the safe physician and surgeon takes his measures according to the possibilities of his case; he avoids disaster when, by foresight, he can do so. He takes a small risk to avoid a large one. The surgeon advises the trivial danger of a timely exploration that will prove the truth rather than the insurmountable danger of a delay that makes exploration imperative. He will operate in chronic abdominal diseases when an accurate diagnosis is impossible and cure certain, rather than when diagnosis is certain but cure impossible. The disasters of chronic and obscure disease make the death and disaster of radical surgery most prolific. We have, I think, carried the success of acute surgery nearly as far as it can be carried. The results seem hardly capable of improvement. It remains to demonstrate a road that will lead to almost invariable success in chronic and obscure surgery. That road lies through improved powers of diagnosis.

In the emergency surgery of pre-antiseptic days, the signs of urgency were indeed glaring. Disaster through delay was impossible if the surgeon had the least knowledge of his art. Strangulated hernia, external haemorrhage, laryngeal stenosis, and the like, presented such conspicuous symptoms that he must indeed have been ignorant of their significance who did not hurry his patient to the surgeon.

Today the time has come in surgical and medical diagnosis when most emergencies of surgery are as clear to the skilled diagnostician as those of the days when surgery was known as external pathology and the diagnosis was

glaringly conspicuous. I think we may safely say that, throughout our country, it is rare to find a physician who is not properly impressed by the nature and urgency of appendicitis and other causes of peritonitis; acute intestinal obstruction of all kinds; perforation of the stomach, duodenum, gall-bladder, intestines and other viscera; ruptured extra-uterine pregnancies and other causes of internal haemorrhage; torsion of tumors or of organs with long and loose pedicles; internal gangrenes from circulatory disturbances—in a word, all kinds of mechanical diseases which demand prompt mechanical relief for the saving of life.

I might mention other and rarer emergencies—those of brain and spinal cord, of the lung, and of the heart itself. Suffice it to say the medical profession throughout America has a proper appreciation of the importance of timely recognition and prompt intervention in the acute emergencies of surgery. There was a time when these things were not realized. In some cases, fortunately infrequent, they are not realized now. The work of American surgeons—and not an inconsiderable part of it in small communities—has in the aggregate been wonderfully productive of good results, so that today we see the almost total elimination of these awful disasters in emergency surgery so largely caused by delay, both in the diagnosis and in the mechanical remedy. Those of us who began our work in the late '70's and early '80's recall only too well the awful results of delayed intervention. Today we see disaster the exception, where it used to be the rule.

Diagnosis may be regarded as one of the primary studies of clinical medicine—illustrative of the first principles of applied science. The correctness of conclusions based upon accurate data as illustrated by the clinical teachers is conspicuous to the student. It often seems almost impossible to err in the interpretation of disease. But it is not long before the young practitioner finds for himself, perhaps through bitter experience, what we older men have not ourselves as yet mastered; that diagnosis is a great, a very great science, not only as great a science as surgery is an art, but far greater. Familiar as the student or the practitioner may be with the A B C's of diagnosis, unless he is ever alert, abreast of the times, regardful of his own as well as of the errors of others, eager for renewed experiences, ever conscious of his own defects, and, above all, unless he studies unceasingly the relation between causes and effect, between the pathology living and dead and the history of its manifestations: Unless, I say, the practitioner is mindful of these things, he will never get far beyond the A B C's of diagnosis; will never be able to perceive the exception under the overwhelming influence of the general rule.

But is it desirable for us so to educate our young men that they will be spending their chief efforts upon the unusual or the occasional, perhaps to the neglect of the frequent or the obvious? It is impossible to cultivate the former without also making more impregnable our conclusions in the latter. To become any more valuable than the beginner, the diagnostician *must* have in the repository of his mind a collection of experiences with the unusual, available when needed—the right thing in the right place, the guide to success, when, without a guide, success is impossible. The broader the experience the more likely a correct interpretation when accuracy is essential. We must acquire, I say, a stock of experiences in pathology and symptomatology so wide that, no matter how unusual or complicated the emergency, the history and physical examination will suggest the truth—a truth which, once suggested, will be strengthened more and more by a review of established facts and the acquisition of new ones.

Again, we must try might and main to test a problem of diagnosis by reconstructing the history on the theory that our deductions are correct; we should try to demonstrate the syllogism backward, and from the conclusion to reconstruct the premises. We *must* become more alert in our recognition of the unusual,

the atypical, if we are successfully to eliminate from surgery the occasional disaster of faulty diagnosis.

Take, again, appendicitis as a prolific source of studies in diagnosis. Because the most frequent abdominal emergency, appendicitis is the easiest of diagnosis. But if prolific in illustration of the A B C's of correct logic, it is also a source of error of the most fatal and distressful sort. He who takes it for granted that the diagnosis of appendicitis does not permit mistakes, will find himself sometimes woefully wrong. This disease shows itself in ways that tend to deceive. So natural, not to say so suggestive, so almost unmistakable may be a history, that the observer must test, with the most painstaking care, the premises before he draws his conclusion, especially when that conclusion is a contra-indication to operation. The burden of proof in opinions which contra-indicate operation is a heavy one, when delays under an alternative diagnosis are dangerous. Delay when the pathology is safe to leave is one thing; when the condition is essentially fatal if unrelieved, delay is quite another. Upon the deductions of the former when the latter is the trouble, rests an awful responsibility; but one which, I must say, is often lightly undertaken.

General peritonitis, from whatever cause, usually presents not only a history which makes its probability conspicuous, but also objective signs which make that probability a certainty. Sometimes, however, the onset, history and physical signs are so atypical that hardly a suspicion of the disease can be entertained. To detect appendicitis as a cause of the unusual and the atypical peritonitis; or, in the typical, to determine the exact one of the possible many causes; to eliminate the occasional disaster which error in these particulars makes almost unavoidable; to escape, in a word, the contingencies of error in the diagnosis of appendicitis or of peritonitis, requires knowledge and experience of the highest order, and to this day disasters occur in the work of the most eminent men of our profession—disasters which, in the light of the demonstrated truth, seem so unnecessary that we feel that they must never be allowed to occur again. And yet when, under the spur of humiliation and of sorrow, even when we all are conscious that we have given our patient our very best efforts, we resolver never to permit again so distressing a disaster, we know perfectly well that the limitations of diagnosis are so narrow that it is only a question of time when the same thing will happen again. To avoid the avoidable in diagnosis, we must keep ever most conspicuously before our eyes the disasters of the past and their causes. We must beware of over-confidence in asserting our views when the alternative means death. I am not so sure that it would not be better to act upon the assumption of an evil pathology than upon that of an insignificant pathology.

My aim is to stimulate as far as I can do so every effort to meet and to avoid the contingencies of error in the recognition of disease. With those who may feel that this contingency is small, I agree; but it is ever present, and when that error does occur, and disaster follows, we wonder that such a thing could ever have happened.

Appendicitis, for example, occasionally presents signs which are as misleading to the surgeon and to the physician as is a false beacon to a mariner in a hurricane. The vessel is lured into the very breakers before the seaman realizes where he is, and all perish. So the surgeon, in the false security of an atypical history, finds, when he finally realizes the presence of a general peritonitis that he might easily have avoided, that his remedy is too late, and his patient is beyond the possibiilty of cure. Am I too strong in this statement? I surely am not emphatic enough.

Take a history of abdominal pain—spasmodic intermittent, without fever, with bloody urine—and what does it mean before the fact? Would it suggest anything but renal stone and a temporary attack, with plenty of time for study, X-ray, ureteral catheterization, and cystoscopy? When the unmistakable presence of a general peritonitis shows too late a perfo-

rated appendix, which operation, performed as soon as the gravity of the case is realized, fails to relieve, and the patient dies, then the awful significance of a delusive history becomes apparent.

It is such difficult cases in the hands of the highest exponents of our art that lead me to reiterate that it is diagnosis, and diagnosis of the very highest order, that is the greatest need of our profession for the avoidance of the chief contingency of error.

I can readily see, as I proceed in my demonstration of the preventable disasters of surgery, that my subject is too vast to be considered in detail within the time alloted me. The mistaken diagnosis is prolific in errors of the first magnitude. To consider those in diagnosis upon the correctness of which depends the conservation of life and health, through prompt intervention, is in itself beyond the scope of this address.

In advocating by precept and by example improvement of our profession by a candid avowal of our errors, I am aware that I am asking a good deal of my professional colleagues. But I am absolutely convinced that it is by freely admitting error that error is best avoided. On the other hand, by concealing error, repetition of that error is encouraged.

No one knows better than myself the bitterness of error, or the chagrin of its admission. But ought we not, as a matter of right and wrong, for the benefit of others and for the final substitution of accuracy for inaccuracy, to rise above the plane of human endeavor, and clear the atmosphere by a prompt, frank and rigid publication of all those acts of ours which beget or transmit error, and, through error, lead to disaster?

I, for one—hard though it may be, great though the chagrin—feel it my duty to make widely known those acts of my own which have resulted in disaster, that others, through my bitter experiences, may learn to avoid similar ones. Is it not an act of reparation, perhaps the only one possible by which the harm of the past through ignorance may in the future through increased knowledge result in untold good?

In the study of acute pathological processes within the abdomen, the greatest difficulty of correct interpretation is found. Until our powers of diagnosis are sufficiently great to discriminate accurately between them, the safest course is the decision between those which for safety demand exploration, whatever the diagnosis. Applying this rule by emphasizing its exceptions, we select, I believe, the safest course. If I were to lay down a rule for my own guidance I should say: Beware that diagnosis of acute abdominal conditions upon which is based delay, study it with the greatest doubt, scrutinize it most searchingly, cross-examine it unmercifully, emphasize the prognosis under the let-alone treatment of the alternative diagnosis, assume that you are wrong and that there is really a peritonitis when you say there is not.

But it is not only the emergency diagnosis that is prolific of errors. Perhaps even more distressing, because there is no haste, is the chronic disease in which too late one recognizes an error.

The most frequent source of disaster in chronic disease are neoplasms of the breast, ovary, and stomach—most prolific in error because of all these possible neoplasms, malignant disease is the most frequent. Moreover, though a reliable diagnosis of malignancy is sooner or later possible, a safe diagnosis of non-malignancy is, in the early stages, never in a single instance of breast, stomach, or ovarian tumor, so impregnable as to permit the least lapse of watchfulness. Indeed, if the rule of invariable exploration is ever applicable to new growths, and that with no delay whatsoever, it is applicable to new growths of the breast, the stomach, and the ovary. Not that there are not many other situations in which neoplasms may not prove malignant, but these organs are especially subject to malignancy, and are particularly liable to lead to error in diagnosis.

And yet, fully believing that the experienced

surgeon, in the great majority of breast tumors, can tell when a tumor is benign, I still think that in a certain number of cases he cannot tell. Some which he believes to be benign he will some day be horrified to find, too late for the best chance, cancerous. Not often, I am sure, will this experience come to him, but it will come once in a while. Nevertheless, I fully believe that the breast tumor at the cancer age demands in every case absolute proof of its nature. To attempt discrimination when there is the least doubt will surely bring the really awful disaster of a life lost through ignorance when the attempt was sincere through knowledge to avoid unnecessary mutilation.

In stomach diseases, through inaccessibility to physical examinations, the contingency of error—of calling organic diseases functional and functional diseases organic, malignant tumors benign and benign tumors malignant—is far too great to postpone exploration for absolute proof of the diagnosis. We must resort to surgery when the diagnosis of organic gastric disease is a suspicion rather than a certainty, for no more brilliant field for effective surgery exists than that of the stomach, provided that the remedy is applied early, and no more discouraginging and unsuccessful field when it is applied late.

I have seen too many mistakes in the diagnosis of gastric cancer to view with equanimity any diagnosis of gastric ulcer that is used to justify delay; too many diagnoses of gastric ulcer, I mean, when the disease is really cancer. I have held in my hands the gastric tumor, and pronounced it cancer, when later it was proved by microscopic examination to be ulcer, and ulcer when it proved to be cancer.

In the case of the ovarian tumor—to select another organ which must be examined wholly by the sense of touch—we have possibilities of disaster which must not be ignored, even if the diagnosis of benignancy is sanctioned by the greatest experience and the highest authority, because tumors of this organ are excessively malignant, and because no opinion, no matter how experienced, can prove without exploration that the tumor is benign. Indeed, many an ovarian tumor apparently benign has elements of malignancy that will escape the most rigid scrutiny. Such apparently benign tumors explain many a dissemination of cancer throughout the abdomen through operative implantation.

In my own operations the too-late demonstration of hopelessness in the breast, the stomach, and the ovary constitutes one of the most prolific sources of disaster—of disaster all the more regrettable because it might have been prevented by timely recognition. My rule of guidance in the treatment of ovarian tumors is to treat them all as malignant when they are large enough to be felt. In suspected organic diseases of the stomach, in all ovarian growths, indeed in all doubtful tumors of the abdomen in which inaccessibility makes a positive demonstration of malignancy impossible, the exploratory laparotomy must be resorted to when the diagnosis is uncertain and when an error of diagnosis without exploration means irremediable hopelessness.

I sometimes think that the one attribute in the practitioner of medicine by far the most valuable to his patient in his ability to predict the outcome of his patient's malady. Indeed, is not this the most important thing in medicine and surgery? In other walks of life there are numerous examples of the mighty force of intellectual accomplishment by which one has gained the ability to foretell events and to take advantage of them.

In war, for example, the one thing that made Napoleon great was his ability to predict. He had that gift of foreseeing what his opponent was going to do, and of taking his measures accordingly. Had his subordinates followed to the letter the instructions of his far-seeing intellect, neither Waterloo nor any other encounter with the enemy would have failed. In business, in law, and in most human occupations this power of foresight benefits its possessor, and incidentally perhaps, through

wise philanthropy, mankind generally. In our profession it is purely altruistic, making directly for the benefit of the individual and indirectly for the benefit of mankind.

Prognosis is important in connection with my subject only when, through errors of prediction, the right thing is not done at the right time—when, for example, tuberculosis and other non-malignant lesions are allowed undisputed sway, until the most favorable time for surgical treatment is past. In malignant disease the prognosis is, without operation, so invariably bad that the diagnosis alone is needed to fulfill the indications for operation.

Next in importance to malignant diseases come the various manifestations of surgical tuberculosis; but while the prognosis in the former is always bad, that in the latter is sometimes inexplicable—indefinable. It may be not only obscure but absolutely beyond comprehension. Tuberculosis, therefore, as an element of disaster through failure of recognition is not like cancer, for not infrequently it pursues a favorable course—sometimes even more favorable without than with surgical treatment.

Not that the prognosis may not be said always to be bad, but without exception bad it surely is not. Who cannot recall a case of tuberculosis here and there that has recovered spontaneously? What surgeon is there who has had no occasion to regret extensive and disfiguring operations that did more harm than good—cases the almost exact duplicate of which he has seen recover in a seemingly marvellous manner. I, for one, have surely seen such cases, notably in that most discouraging form of tuberculous disease, the genito-urinary—not one case but a considerable number of cases in which, upon the most authoritative of prognosis, there was no hope. I have learned, therefore, to be extremely careful of my unfavorable prognosis in tuberculosis.

The fact is, of course, that, in spite of its great prevalence, we really know nothing or next to nothing of the prognosis in tuberculosis. If any one thinks that we do, then let him explain why a trivial tubercular ulcer of a mucous membrane—tongue, larynx, intestine, bladder—is so obstinate, when half the ascitic peritoneal tuberculoses disappear, with their countless nodules of infection, after incision and drainage.

And yet no one knows better than the surgeon the importance of an early diagnosis in surgical tuberculosis; that surgical treatment, if indicated, may be applied at the earliest possible moment.

The things that interest me most in connection with my subject are not so much the mishaps of common and easily explained occurrences—which experience, skill, and ordinary care can avoid—as they are the inexplicable and thus far unavoidable disasters which add to their intrinsic horror that of mystery and utter helplessness. A post-operative abdominal hemorrhage is bad enough, but it seldom happens a second time from the slipping of a ligature; or uncontrollable and fatal capillary hemorrhage after operations upon jaundiced patients never surprises a second time the surgeon or finds unprepared the friends. The bolt that comes as it were from a clear sky without the least warning is the contingency ever to be feared, for we have no power successfully to meet it. The awful possibility of sudden death under anaesthesia, of pulmonary embolism, and perhaps of other disasters quite as unpredictable and unpreventable—even the mysterious and fatal infections ever present and ready to invade the body the moment the barriers are let down—every sort of a disaster, in fact, in which the element of the unknown and the thus far unknowable enters—is a source of dread to the operating surgeon. Perhaps the most important because the most common, the most interesting because the most fatal, the most stimulating because in theory at least the most avoidable, is the pulmonary embolism. This lesion may be perhaps in theory avoidable, because its pathology is but that of the blood clot, but thus far in practice the disaster has been absolutely unpredictable and unpreventable.

In the beginning of my experience in abdominal surgery pulmonary embolism was very shocking to me, for I thought it meant some preventable cause for which I must hold myself responsible. From that time to this, every year has shown one or two cases of that disaster. It seemed at first preventable because I thought the clot necessarily detached in cases of phlebitis, such as we see not infrequently after all abdominal operations, especially uterine, as well as during typhoid and other fevers, after confinement, or in apparent health. I was, therefore, especially careful, as indeed I am now, to keep patients with phlebitis quiet, lest a clot become detached. But the cases of saphenous phlebitis are not the ones in which pulmonary embolism occurs. It occurs rather in the case of the patient who is doing perfectly well, and in whose case there is not even a suspicion of phlebitis. The stroke falls out of a clear sky; the prae-cordial distress, gasping, and death take place without any warning whatever. Instead of a real phlebitis a soft clot forms in some large venous trunk, projects into a larger, becomes detached and swept into the right heart, whence it is driven into the pulmonary artery. If sepsis plays any part in the formation of the clot I have never seen any evidence of it beyond the existence of the sepsis for which the operation was originally performed. The cases of pulmonary embolism that I have seen in my own patients have as an overwhelming rule, occurred without sepsis, as I say.

Upon this subject I have written much, and I hope that my experience and my conviction that this disaster is essentially unavoidable and unpreventable has proved of comfort to others similarly disheartened by the awful suddenness of this disaster, which in a moment turns a house of rejoicing into a house of mourning.

I have sometimes thought that the clotting of blood might be made less likely if the patient is not kept too still after operation. How to make the tendency to thrombosis in the veins less than it is I do not know. That the disaster is humanly preventable I do not believe.

I regard pulmonary embolism as the one absolutely unpreventable disaster after all surgical operations. Though it occurs most frequently after pelvic operations in women, it sometimes occurs in men, and after all sorts of operations in both sexes. In women the cases have been pelvic exclusively, though I have known it to occur after gall-bladder and breast operations. In men the disaster has always followed acute appendicitis.

The disasters of anaesthesia are usually preventable, but not always so. I have been educated in anaesthesia where it was first used, and by a man who was present at the first public demonstration of ether anaesthesia—Henry J. Bigelow.

Of all the disasters of surgery I regard those of anaesthesia as the greatest. Anaesthesia is, fortunately, not the most prolific source of sudden death, but it is the first in the surgical history of the case. If the patient cannot be brought safely to the operation and through it, from failure of the anaesthetic, then we need not consider the accidents of technique and convalescence. The very first principles of operative measures fail with the failure of the anaesthetic.

The demonstration of ether in its safety, the universal clinging to ether as the safest anaesthetic—in our community at least—has brought about in ether anaesthesia a confidence which ought to be given no forcible production of unconsciousness. We have said that there is no danger in ether. Such confidence must be born of ignorance. There is danger in all kinds of general anaesthesia—but less in ether than in any means that I know of. But the dangers of anaesthesia by ether are unpreventable. They are unpreventable because due to causes that cannot be foreseen. These causes may be described as certain causes of destruction of property are described, against which ordinary insurance policies do not protect—they may be described, I

say, as the acts of God—like the lightning and the earthquake.

For example, a young girl a short time before the day set for her marriage submitted to an operation for movable kidneys. The surgeon stayed with her until she seemed to be safely coming out of the ether. A nurse was left in charge. The recovery room, in which the patient was, was next my operating room where I was at work with a very skillful and experienced anaesthetist at the ether. The nurse called us to her patient because the breathing had stopped. I succeeded in starting up the respiration, and left the patient for my own case. A little later she stopped breathing again and became cyanotic. I performed artificial respiration and restored her color, but not the spontaneous respiration. I sent for Dr. Walton, the neurologist, and for the surgeon. The girl survived, under artificial respiration, twenty-one hours, but never during that time did she make the least effort to breathe by herself. Walton thought it a hemorrhage into the medulla. No autopsy was allowed.

To record unflinchingly one's experiences, especially the bad ones, is one of the duties incumbent upon every surgeon, particularly the older men. Could we but transmit the teachings our riper years have given us to those just beginning—could young men take our knowledge and skill, our successes as well as our failures, just as we leave them—then there would be uninterrupted and rapid progress. Unfortunately every man must learn in the dear school of experience, as Franklin said. I, for one, would be content if young men could learn our failures through our experience, leaving for themselves only success through our errors. But do we try to teach coming generations through that school of personal experience which we have found so bitter and so dear? *We do not.* We do not teach from our errors as we ought, and we all know it. We hasten to teach our successes without the limitations of our failures. Franklin was led to say what he did—that "Experience keeps a dear school, but fools will learn in no other"—by the facts; the teachers in his school did not teach or transmit their bitter experiences, and the fools thought that no such experiences had taken place. Experience could teach a dear school in medicine, at which one might learn even if not a fool, but no such school is kept by the experienced. Inexperience teaches a dear school, and he is a fool who thinks he is getting the real thing in that school. Fools have to learn in that school because there is no other.

Were the great blunders of surgery freely admitted, does any one believe that a surgeon of ordinary intelligence would commit such an inexcusable blunder as the removal of a patient's only kidney; the amputation of the wrong leg or eye; the leaving of a gauze in the abdomen, or the burning of a patient? He most assuredly would not. Were a trusted teacher to say, instead of a generality, "I have done that very thing myself, and so bitterly do I repent my carelessness and ignorance that I hasten to warn you with this specific example." Or does he show—actually demonstrate to his class—an error of dissection, like paralysis of the recurrent laryngeal nerve in goitre, facial paralysis in parotid tumors, or an incompetent sphincter after operation for fistula in ano? Does he tell you of his suits for leaving in gauzes, needles, drainage tubes, or worse? If he hastens to warn his colleagues by rushing into print I fail to see his warnings.

Not that the truth should be told at all times.

The avoidable disasters of our profession are, I say, undergoing gradually a process of elimination more or less complete. Is it too much to hope that in time these disasters will become absolutely eliminated as far as we physicians and surgeons can exert an eliminative control? I believe that the time is coming—and in some communities has already come—when these calamities will have so slight a bearing upon prognosis as to be negligible.

The remedy seems such a truism that I hes-

itate to give expression to it. We all know what this remedy is, but we do not realize the importance of its cultivation to the highest degree possible. We should all not only thirst for it, but should exert ourselves to the utmost to gratify that thirst.

I mean nothing more or less than knowledge; its acquisition, its dissemination, and its application to professional skill in diagnosis, indications for treatment, operation, and postoperative management of the case.

Now, it seems little less than absurd, does it not, for me to address a body of professional men in the way I do, when every man within the sound of my voice knows as well as I do, and has always known, that knowledge is power—in our profession power over disease, over its diagnosis, and, what interests the layman most, power over the prognosis.

True, it does not seem absurd. But is it so absurd? Let us pause, and, like the man of business, see where we stand. Let us take account of stock.

Do we realize the importance of knowledge, and do we take every opportunity to acquire it and to apply it? Are we alert in diagnosis? Is our success as great in diagnosis as a constant study of pathology, an investigation of its relation to symptoms and history upon every opportunity, will make possible? Do we seek upon every occasion to determine the relation between cause and effect—the dependence of the history upon the pathology as the operation demonstrates it, or as the autopsy confirms it. Do we regard ourselves with our diplomas as finished diagnosticians and operators, or should we strive ever to perfect ourselves in pathology and diagnosis so long as we continue to practice our profession? Can there be any doubt what our answer to these questions should be? Most assuredly not. But in our daily practice do we as a body possess in high perfection those attributes so essential to good practice? I am afraid we do not. We forget, and I maintain that we must be spurred on constantly, lest we forget, lest we forget!

In considering the elimination of the preventable disaster we must make sure of our definitions. Strictly speaking, is there any misfortune in surgery which, if we knew its cause, might not be classed as preventable—in theory at least? Take the commonest disaster of abdominal surgery in which no element of sepsis can exist except that introduced by the surgeon at his operation—peritonitis. So well is the matter of asepsis known, even by the layman, that peritonitis following an operation for a clean lesion—the removal of an ovarian cyst, for example—is regarded by the lay public as proof of an imperfect asepsis, as it indeed is. But we practical surgeons, while we admit the strength of the assertion that sepsis means practically an operative imperfection, assert also that the contamination of a wound may occur in the practice of the most experienced operator, under the most rigid precaution of asepsis.

This occurrence of sepsis, in the peritoneum for example, is one of the most sinister postoperative disasters, because we cannot tell how or why it has occurred; nor can we take in the next case any greater precautions than we took in the disastrous one. We review our technique with uncompromising severity and self-criticism, and find no flaw.

This is the most disheartening aspect of my subject, for we are obliged to admit that we have not succeeded in bringing about the complete elimination of the occasional disaster of sepsis. But our natural discouragement is tempered with hope and satisfaction, especially in the cases of those of us who cannot forget the great proportion of septic operations in the beginnings of modern surgery. Indeed, it is hard to see how we felt so great a hope in the time of the spray, when our sheet anchor was carbolic acid and antisepsis, but when a large proportion of wounds suppurated, and when we undertook with misgivings any abdominal surgery that was not indispensable. Even in 1893, when I performed my first interval appendix, I was filled with anxious forebodings as to the safety of the procedure.

In the beginning such operations as abdom-

inal hysterectomy, under the most favorable conditions, had a mortality that now would almost drive the operator from the field in dismay. And so it was with all the new fields of abdominal surgery.

In the clean abdominal cases I think it may be said that the disasters of inadequate asepsis are so infrequent as to be almost negligible. Our methods today seem to me almost perfect. I do not know of any one thing that has done so much toward the modern perfection of abdominal surgery as the use of the rubber glove.

In the consideration of the preventable disasters of surgery something must be said of those which depend upon ignorance and inexperience. In the scope of this essay the matter of preparedness to practice surgery has little place, for it is taken for granted that the surgeon possesses at least the average skill. With the fact that much of our surgery is performed by those who have not received adequate preparation, my remarks have little to do. Suffice it to say that modern surgery is a highly specialized field into which no man's conscience should permit him to enter until he has gone through a long and hard apprenticeship. Even then most of his errors will be the errors of ignorance and inexperience.

The avoidable disasters of the mature surgeon, who brings to bear upon the most difficult problems of surgery a ripe experience, include the errors of technique, but these errors are reduced to a minimum not only because they are preventable, but because the surgeon avoids technical errors as it were mechanically and as a matter of course of long habit, of deeply inground instinct.

The next element in the prevention of disaster is the operator's skill and experience. This topic is prolific in suggestions for the elevation of our art and for the total banishment of blameworthy results.

I sometimes think that the present and coming generations of surgeons ought to be reminded more than they are of the beginnings of modern suregery. They ought to know, too, what surgeons of the old school could do. I have seen both, not only the most skillful of the prae-antiseptic operators, but those of the present day. I wish I could have seen with my own eyes the prae-anaesthetic-day surgeon, when humanity made it necessary for the surgeon to shorten to its very lowest terms the period of martyrdom of the conscious patient. Then amputation and cutting for stone were matters of seconds.

But do we reduce to its lowest terms the equation of error in surgery? What do we mean by the equation of error? Each case has its possibilities of error, but every one presents somewhere or somehow evidence upon which may be based a correct diagnosis. Each case, correctly diagnosicated, presents, through our knowledge of pathology and physiology, a prognosis more or less definite. In the treatment of this case the outcome depends upon the way in which the indications for treatment are formulated, the way in which the surgeon carries out that treatment, and the way in which the patient sustains and responds to that treatment. Finally, there is the equation of the unavoidable, of the contingent—of the disaster which may be called (as the lightning, the tempest, and the earthquake in the prognosis of insurance) the acts of God—the unforeseeable, the unpreventable, the uninsurable.

We can provide against all these errors, disasters, contingencies from the time we first see the patient until our connection with him is severed, whether by recovery, death, failure of cure, or change of physician—we can provide against them all, I say, in theory at least, until we come to the unforeseeable, the unpreventable, the uninsurable—the act of God, as it were. And our conscientious and devoted profession is, by many shallow people, often held responsible for the unpreventable, the unforeseeable, the uninsurable.

It is well, it seems to me, thus to attempt to define what is a preventable disaster, and what is not, even if it takes many words and a great effort to express just what I mean;

for is it not true that we are, in fact, held responsible not only for the preventable but for the unpreventable disaster?

The equation of error as applied to surgery, and taken from the usage of astronomy and physics, is the variation from mathematical accuracy which human fallibility and imperfection cannot eradicate. The timing of a contact, for example (to use a familiar astronomical observation), between the edge of the moon and the sun in an eclipse; the timing of the eclipses of Jupiter's moons; the determination of the parallax of the nearest fixed stars; the reading of the finest lines of the spetcrum; the lines of the diatom—in these and similar observations the most skillful observers vary a little. Each observer's variation is taken, and, from a large number of observers, the average is computed. From this average the variation of each observer is his equation of error. It is really the swiftness and precision of his brain in perceiving and transmitting impressions.

Now, in a very gross way, the surgeon, from his diagnosis to the completion of his operation—perhaps even to the discharge of his patient—is subject to error of all kinds. All these errors are errors of observation, of deduction, of the technical use of instruments, of anatomical knowledge, of judgment, of experience, of recognizing and avoiding danger, of the cleaving to the safe and sure, and the abhorring of the uncertain and the dangerous, of the foreseeing of the contingent and unconquerable—of the lightnings, tempests, and earthquakes of the voyage, as it were; in operating, the recognition of impending disaster which if recognized early may be avoided, but if recognized too late is beyond human art to remedy.

Such are the contingencies of surgery, such the possibilities of error, such the avoidable disaster, which experience has made so small, and which renewed effort can render smaller still.

TUBERCULOSIS.*

By P. J. GLASS, M.D.,
Mobile, Ala.

Tuberculosis of the lungs, or consumption, is an old disease known to the ancients, having been recognized as early as Hipocrates' time, more than four hundred years before Christ. When we look back over all these vast ages and contemplate the terrible suffering, want, poverty, sorrow, destruction and death caused by this dread disease, we at once become astounded. Think of the countless millions of bright, happy lives this great white plague has blotted out, and this, too, in the very prime and vigor of life, mostly between the ages of twenty and forty-five, and there is no wonder the whole world is aroused in the attempt to prevent the spread of this most relentless destroyer, the curse of every nation.

Looking at it from an economic standpoint, though less grieved, we are not less amazed when we think of the money loss to the world each year from the sickness and deaths of those dying from this terrible malady. Counting, as is now usually customary and undoubtedly correct, the death of each active person who succumbs to tuberculosis at the valuation of fifteen hundred dollars, the time lost at one dollar per day, and one dollar and fifty cents for maintenance during the helpless stage of the disease, it is said that my own beloved

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state—Alabama—alone loses annually from the ravages of this disease eight million dollars, and very likely the great State of Mississippi loses an equal amount. In the United States each year the disease claims over one hundred and fifty thousand useful citizens and causes a money loss of more than three hundred million dollars.

If this vast amount of money, which represents only one year's loss, should be appropriated and turned over to the medical profession to be used in eradicating the disease, I believe this fair land of ours would soon be free from this awful scourge. While it is pretty safe to say that the United States government will never make so great an appropriation for this purpose, who knows but that the benevolent rich men of this country will get together and furnish the means to accomplish this purpose and thus immortalize themselves? Should these great and powerful men, the millionaires of this country, ever be induced to put up the money, the medical profession have the disposition, the knowledge and the brains to stamp tuberculosis from the face of the United States, and they would not be long in doing it.

Until that great benefactor of mankind, the brilliant German scientist, Dr. Koch, made the important discovery in 1882, isolating the tubercle bacillus, and demonstrating beyond doubt that this alone caused tuberculosis, the profession had no hope of either preventing or curing the disease. But now it is known positively that it is not hereditary nor incurable. On the other hand, we know absolutely that it is communicable, infectious, preventable and curable.

What I could say along the line of preventive methods would be simply to repeat what you have heard over and over again, and hence I will dismiss this phase of the subject by saying that what is needed most now to eradicate the disease is money, and lots of it, and I again express the hope that the benevolent rich will some time in the near future donate what money is needed for this purpose. If this is done the great medical profession of this country can be depended upon to do the rest.

While the whole scientific world is exerting every effort to forestall and wipe from the face of the earth this dread disease, which is responsible for one-fourth of all the deaths among adults and one-seventh of the entire death roll in every country, the question arises: Are we as individual physicians doing our whole duty in curing those unfortunate victims who have already contracted the disease? Do we take sufficient interest in them to cure them? As a rule, we do not. While tuberculosis is a curable disease, and most cases except those in the advanced stage get well under proper management, there are no drugs at present known to medical science that are specifics in the disease. The treatment, summed up, is rest, sunshine, fresh air, abundant nourishing food, and careful, intelligent and constant supervision on the part of the physician over the patient. It is our duty to give the victim of tuberculosis a square deal, and if he is honest to himself and to the doctor, and is not contrary and disobedient, and is willing to put up a good fight for his life, and has the means and proper environments, he can and will get well if the doctor does his full duty. I speak of white people. The negro has but slight chance of recovery once he gets the disease. As a rule, he has not the intelligence, means, honesty nor willingness necessary to carry out the directions of the attending physician, and hence he soon dies, but not until he has, from uncleanly and careless habits, spread the disease right and left. Immediately upon diagnosing a case—which, of course, should be done at the earliest possible moment—the patient should be told truthfully that he has the disease, and not be led to think he only has bronchitis or threatened with consumption. He may be shocked at first, but, fortunately, consumptives, even before we learned to cure them, were a hopeful class, and now, since they understand they can be cured, they are

more hopeful than before, as they have a right to be. Hence they soon recover from the slight shock and have added confidence in the doctors' honesty and ability to cure them, and usually will enter heartily into the work of getting well. He should be told that he can and must get well if he will take treatment properly, obey orders exactly, and not be obstinate, unruly or negligent. The patient's habits, environments and finances should be inquired into, and, if necessary and it is possible to do so, change the environments so that life at home will be happy and comfortable, and not miserable, as is so often the case. So situate them that their lives will be full of enjoyment and free from cares, fatigue and constant annoyances.

For instance, the woman who nurses a cross, sickly child and does her own work, and has to please an unreasonable, irritable husband, too, has no chance of recovery unless these unfavorable environments can be changed. The man who has to provide for an invalid, hysterical, quarrelsome and extravagant wife and a lot of disobedient, lazy children must undergo a change of environment before he can have a fighting chance for his life.

If you cannot get favorable environments, it is best to send the patient to a sanatorium—the ideal treatment because patients can be best controlled. There are many things which make a change from home treatment necessary at times. Ladies who are not willing to give up social duties have but little hope outside of sanatorium treatment, and the same may be said of men. Also, men who think they cannot give up business for a time and be treated should be sent to a well-regulated tuberculosis sanatorium.

Tell the patient's provider if he will furnish the means for plenty of nourishing food and other expenses, you will furnish the skill to cure; and stick to your promise and see that he does the same. If the patient has the means and wants to go to a climate resort, then let him go, for climate is a factor in the treatment of tuberculosis that should not be entirely ignored. The air of Asheville, Western Texas, Arizona, New Mexico and Colorado often stimulates the vital organs, deepens the respiration, awakens the appetite and improves the mental attitude, thereby increasing the chances of recovery.

Discretion and common sense should be used in sending him away. If he is merely told to go, leaving him to indulge in the widely-spread belief in a mysterious specific influence of climate and a superstitious faith in its unaided powers to cure, he will neglect those more important matters—hygiene, diet and careful and efficient medical supervision and control. Rather than leave him to guide his own case in ignorance, without teaching and supervision, far better give him the open air, hygienic, dietetic and rest cure at home. If you do send him away, put him under the care of some reputable doctor you know personally, but if this is not feasible, then under some physician you know by reputation to be skilled in the treatment of this disease, and thus protect him against falling into the hands of a quack, who is ever ready to relieve him of both his money and his life by wasting his valuable time; for time is a very important factor in the treatment of these cases. But sanatorium treatment I believe is the best if patients can afford it. However, most cases have a good chance at home. Have him sleep on the gallery or in a room with all windows and doors open in all seasons—not only tell him this but see to it that he does it. He must be taught this will not give him cold and pneumonia, and that plenty of pure, fresh night air is not harmful, even in the coldest weather. He must remain strictly in bed when running temperature and to take very moderate outdoor exercise in the sunshine (sunshine destroys tubercle bacilli) when free from fever. He should be taught to take from one hundred and fifty to five hundred deep inspirations in the open air daily, not excepting the hemorrhagic cases. He must eat plenty of substantial and wholesome food. Have him eat each

day twelve raw eggs, two quarts of milk and one pint of cream, two large one-inch thick, half-pound steaks of good quality broiled one-third on each side with the middle left rare, one large strip of breakfast bacon, two large potatoes the size of a goose egg, with plenty of butter on everything. Other wholesome foods can be eaten if he wants it in addition to the above; but see that he does not neglect to eat all that is on the list. There is such a thing of course as overfeeding, but much more danger of underfeeding. If he gets his stomach overcrowded give him a good dose of caster oil and clear out the intestinal tract and then go ahead with his feeding.

Directions about the diet and in fact everything pertaining to the treatment must be specific. It is not sufficient to say eat plenty, but give him the list and inquire every day to see if he is carrying out directions exactly. Have him weigh at least twice weekly and see that he gains in weight until he gets back to his standard weight and over. If not gaining he is not improving, and if you search diligently each day you can find the reason why and correct it. You will probably find the cause to be either over-exercise or under-eating or both. A goose or pig must be penned to fatten, and the same holds good with man.

It is one time in life that a patient must learn to be lazy. The energetic man who exercises too much will not improve. More fat is assimilated from eating cream than from any other food. So you must insist upon an abundance of cream every day. This item of diet must not be neglected. See the patient every day and watch him like you would a criminal. If you don't watch him every day closely he will neglect something important in his treatment or do something imprudent and perhaps both. It is important to teach him not to deceive you about his treatment. Consumptives seem to get the idea that nothing they do or neglect to do will harm them unless the doctor finds it out. They often actually act as if they really think this absurd as it may appear. Keep the patient in bed as long as he runs temperature, and be sure this2 rule is carried out.

Patients should acquire the umbrella and overshoes habit and be sure not to get caught in rains, but if after every precaution, he should chance to get wet instruct him to keep moving until he can change his clothing, and then take from three to five grains of quinine and a glass of hot milk. It is sitting or standing while wet that chills one. If he will follow this rule he will avoid many relapses and relapses in this disease kill. He should also avoid smoke and dust.

Patients are very often led by their friends to believe whisky is an advantage to them. Nothing is more erroneous. Alcohol plays no part in the treatment of tuberculosis except to do harm. It should be forbidden altogether. Most of the infectious diseases such as measles, pertussis and typhoid fever are dreaded complications and exposure to them should be carefully avoided, but the two worse complications are la grippe and malarial fever. A tuberculosis patient should be taught to avoid exposure to these diseases just like he would the approach of a rattlesnake. He should go to see no one with grip nor allow one having it to come near him. He should also be constantly on the lookout and take every precaution to prevent mosquitoes infecting him with malaria. Perhaps malaria is the hardest of all the complications to eradicate, and is very often the sole cause of failure to cure tuberculosis.

Rheumatism is also often an unfortunate complication. When this is the case we often have to leave off an important part of the nourishing diet. A dozen eggs a day, which the patient needs, will often precipitate an attack of rheumatism in one with a rheumatic diathesis. To a pound of pig's lard add one ounce of quinine and half an ounce of oil gaultheria, and rub this, divided into seven rubbings, well into the skin each week. They absorb some of the fat and enough quinine to act as a prophylactic against malaria, and the gaultheria helps to keep down rheumatism. These constant inunctions seem to accom-

plish good. Patients must be constantly told to watch themselves every day to keep from going wrong, and to keep it in his mind that they have but one business for the time being, and that is the business of getting well. In winter patients should have good, warm clothing and the cold will not hurt them. Fires in the sleeping room must be avoided. After retiring the room is best left cold—it lessens the chances of taking cold when out the next day. The pharynx and larynx should be watched, and if they become involved they are best treated with local applications of twenty to thirty per cent sol. nitrate silver every other day, and the treatment must be kept up for years if necessary. While strychnine, arsenic, iron, cod liver oil and the bitter tonics are useful in toning up the patient and improving the appetite, the three drugs most serviceable, to my mind, in the treatment of tuberculosis, are creosote, tuberculin and antistreptococcic serum. Creosote has given me very satisfactory results, notwithstanding it has been discarded by a large number of physicians.

I give three times daily, in a glass of cream, after meals, from fifteen to thirty drops of Morson's Pure White Label Kreosote, which is a very pure preparation and does not irritate the stomach, while it improves the digestion, prevents and allays stomach and intestinal fermentation. Most creosotes are so impure that they cannot be used in sufficiently large doses to accomplish results. Besides giving it internally, it is useful to have the patient use once daily from twelve to twenty drops in two ounces of liquid vaseline by intrapulmonary inhalation. This is best inhaled under about eighty pounds atmospheric pressure. Besides the creosote I usually add an equal amount of camphor, menthol, terebene and eucalyptol. The terebene occasionally has to be left off on account of producing strangury, especially in old people and pregnant women. Tuberculin, I believe, has come again to stay. Used in the smaller dosage, as it is now done, it often gives brilliant results when used under the proper indications. It is especially useful in cases that advance to improvement to a certain stage and then remain at a standstill. It causes a slight reaction and starts up an improvement in these cases. It also builds up the resistive powers of the patient and prevents relapses, which is one of the most important objects of treatment. When, from neglect or imprudence, one suffers a relapse and begins to have fever every day, loses his appetite, expectorates a great deal, and this is found to be loaded with streptococci and stapylococci, the patient showing the condition known as mixed infection, nothing acts so well as putting the patient to bed and using once daily a tube of antistreptococcic serum, kept up for even thirty days if required. I have seen some brilliant results from its use.

DISCUSSION.

Dr. H. M. Folkes, Biloxi, Miss.—I would like to emphasize one important point that was brought out by the author of the paper, and that is to be frank with the patient and tell him the nature of his disease. There is no greater blunder, no greater crime that a physician can commit, than to aid in deception with regard to a tuberculous patient, not alone for the sake of the patient, but for the people who surround him. I think the patient should be impressed with the fact that he has tuberculosis, and that proper precautions should be taken with regard to the destruction of the sputum, otherwise he may thereby reinfect himself as well as infecting others.

There is another point which I do not think Dr. Glass mentioned, and that is sending patients away from home who are tuberculous. It is certainly the height of injustice and unfairness to send a patient with little or no means to any foreign place to get rid of a disease like tuberculosis. I do not blame the people in the west at all for raising a decided objection to the course pursued by many physicians of sending practically penniless patients out west, telling them to stay outdoors and get well. Physicians should be very careful about doing that unless the patients have ample means and can get the necessities for the proper treatment while in the west.

Dr. Peter W. Roland, Oxford, Miss.—Tuberculosis, like the poor, we have always with us, but unlike the poor, there will come a time when there will be no tuberculosis among us. It is my judgment that the white race will become immune to this disease. We are gradually becoming so all the time. There is no question but that there are thousands of people who are already immune to the disease just as is the case with pneumonia, for instance, or rheumatism, or any given infectious disease. A parallel may

be drawn in the case of drugs and immunity, the Hindu people becoming immune to the effect of opium after having been for ages habituated to its use. They no longer use it as a narcotic. The same principle holds good in acquiring immunity to disease.

As to sending patients away from home, I have abandoned that practice long since. Dr. Folkes is right. It does a patient very great injustice, and nine-tenths of the patients are really financially unable to be sent away from home.

I look upon tuberculosis with a considerable degree of optimism, and I think that view ought to be encouraged among the people. We ought to encourage the subject of tuberculosis to look upon his condition with an optimistic view, make him believe he will get well, and that it is not such a bad thing after all. He can get well if he takes care of himself. We do not strain a point when we say this. It is absolutely true. I keep all my patients at home; it does not make any difference whether they have any money or not; they can be treated better at home, as a rule, and I encourage them to live amid such surroundings as will conduce to increasing their vitality in every way, living in the open air, dieting and encouraging them to believe they will get well. That is a very important point. Do not let the people, and do not let the patient become pessimistic as to the final results to be derived from proper treatment.

A CASE OF GIANT-CELLED SARCOMA OF THE JAW.

By BRYCE W. FONTAINE, M.D.,
Memphis, Tenn.

The subject of this report, a male, white, aged 14 years, was referred to me for diagnosis with a history of the growth having appeared following a contusion of the jaw from a baseball six months previously.

Figure 1.

The tumor had apparently begun about the first bicuspid tooth, and it finally presented a red, fungating mass the size of a large walnut, entirely surrounding the two bicuspids and the canine tooth (Figures 1 and 2). Aside from a stomatisstis and quite a severe secondary anemia, there were no constitutional symptoms and no evidence of metastasis.

The condition was accompanied by considerable pain and discomfort to the patient in the mastication of food, and it was on this account that he came for consultation.

Microscopical examination of the tumor

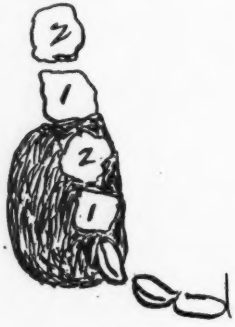

Figure 2

showed that it consisted largely of spindle-cells, through which were distributed giant-cells, or myeppoplaxes, varying in size and containing from five to thirty nuclei which were of uniform size and evenly distributed

through the body of the cell. (Figures 3 and 4.)

The points of interest in the case are its relation to traussmatism, the low malignancy of the tumor, the absence of metastasis and the radical cure after complete excision.

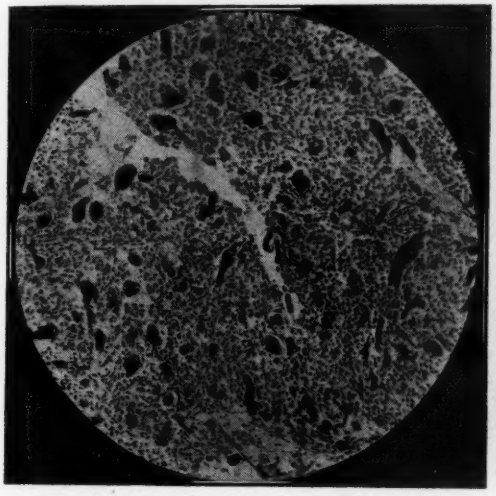

Figure 3

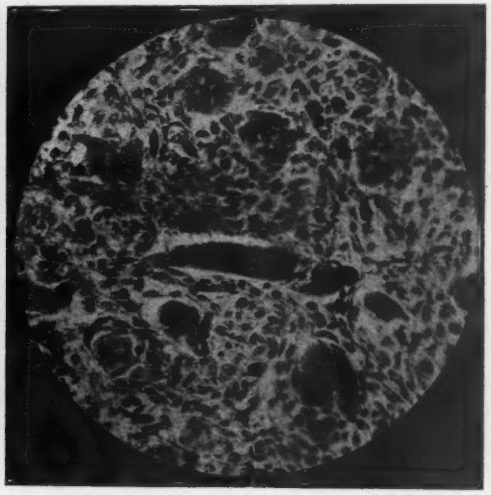

Figure 4

THE VALUE OF VITAL STATISTICS AND THEIR RELATION TO PUBLIC HEALTH WORK.

By WARREN H. BOOKER, C.E.,
Assistant Secretary, North Carolina Board of Health,
Raleigh, N. C.

Vital statistics consist primarily of the compilation of official records of the greatest events in the lives of men. Who will deny the importance or value of official records of births, stillbirths, marriages, divorces, sickness and deaths? Careful analysis of such records serve as the only basis on which we can determine at short range the movements of mankind.

History, it is true, records the past general movements of man, but vital statistics indicate the movements or actions that are taking place at the present time. Careful analyses of these actions will indicate the cause of the movement, as from effect to cause. Furthermore, in dealing with these movements, after once determining the operating cause, we can readily measure, in a comparatively short space of time, the effect of any line of action and its efficiency to facilitate or retard such movements or actions.

To briefly illustrate: Some time ago France found that her death rate was equaling if not exceeding her birth rate. This indicated, if such conditions long continued, the early fall of this great nation. A great part of this terrible economic loss to the nation was found to be among the children. Therefore, to save France a strenuous effort was made to reduce the general death rate, and particularly to reduce the infant death rate by better education of the mothers in the matter of caring for their children. The present forecast is that

in all probability the fall of that nation from this cause is being successfully forestalled.

Vital statistics constitute our national trial balance sheet. They show our debit and credit items, our present worth and our profit and loss accounts. From such facts alone our national general managers can intelligently decide upon the lines to push and the lines to drop.

Vital statistics constitute the most important branch of statistics bearing upon the resources of a nation. They deal with the nation's most vital and valuable assets—the life and health of its people.

Strange indeed that we require private and official record of so many trivial matters and yet neglect these weighty things. It is an everyday occurrence for men to make an official record before a notary public of the fact that they have told the truth. It is absolutely necessary that you make official record of your residence, age, nativity, etc., before you are allowed the right of suffrage. You cannot buy a foot of ground unless you have the transaction recorded, nor can you pay off the mortgage and have your property released without making due record of that fact. It is frequenlty impossible to secure a pint of corn extract from the corner druggist without the official sanction of your physician. From the freshman class meeting or the literary society in the high school to the National Congress, no action, motion, resolution or speech goes by without full and proper record. Yet birthdays are frequently a matter of tradition, and funerals are recorded, if at all, only on tombstones.

Such carelessness may apply to man, but not to plants and the lower animals. Every Berkshire, Hampshiredown or Hackney, every Scotch collie, Leghorn or Angora worthy of the name has an ancestral record that, from point of completeness of its genealogy, can be rivaled only by our Colonial Dames. All this is true, and yet in North Carolina human beings, made in the image of God and endowed with an immortal soul, are born, live and die without any official and frequently with no private record of the facts. Does it seem right and proper that our state and national governments should expend hundreds of thousands of dollars on bureaus of animal industry, in combatting, studying and gathering statistics on cattle ticks, hog cholera and sheep rot, and scarcely a cent in studying or gathering statistics on preventable diseases of man?

We deem it wise to maintain a Bureau of Plant Industry, to collect accurate and detailed crop reports and statistics; but where can we learn if our last year's crop of babies was above or below normal? We have studied and mapped out well defined areas, certain of which we call the cotton belt, the corn belt, the wheat fields, and so on. But did you ever see a map of this country, particularly of North Carolina, showing the areas of greatest total mortality or the greatest mortality from tuberculosis, typhoid, pneumonia or pellagra? We have well equipped weather bureaus that furnish us temperature conditions, velocity of the wind, atmospheric pressure, amount of precipitation, sunshine and humidity. Why not register our vital statistics so that we might know our national temperature and pulse and issue a morbidity forecast?

VALUE OF VITAL STATISTICS TO THE INDIVIDUAL.

So much for vital statistics in their relation to the State. Let us consider briefly just a few of the values of birth and death registration to the individual. Birth registration and certificates should be, and ultimately will be, a requirement for the right to attend school, to work in factories, to marry, to vote, to pay taxes, to hold office or other positions of trust, to untangle legal difficulties, to obtain life insurance, to enter into contracts and partnership, to fix the responsibility for crime and misdemeanor, to establish legitimacy, to enter into and to exempt from military service, jury service and so on. In fact, there is scarcely a relation in the race from the cradle to the grave where official birth certificates would not be of inestimable value. The only reason why we

do not appreciate this fact more is because we have never had such registration.

Death certificates are, and will be, of even greater value. In paying life insurance claims, fixing legal questions, pensions, personal liability and business contracts, indisputable legal proofs of death are necessary. When certificates are made out for all deaths and a physician ascertains the medical cause of death, a great number of deaths from poisoning, homicide, and particularly from infanticide, will be detected, and such crimes will decrease. Epidemics and infectious diseases could also frequently be checked if a physician examined every case of death and filed a death certificate. As it is now, many deaths are neither attended by a physician nor investigated by a coroner.

EDUCATIONAL VALUE OF VITAL STATISTICS.

Vital statistics are of great educational value. Such statistics form one of the best means of studying the negro problem in our State. True, we can go to the census and find there evidences that the negro is not increasing so rapidly as the white man, but nowhere can we learn if the negro birth rate is decreasing, if his average length of life is being shortened, if he is the victim of any special diseases (save possibly tuberculosis), or if he is increasing in certain parts of the country and decreasing in others. Definite answers to these questions, and others, affect tremendously society at large. As it is, we grope in the dark.

The educational value of vital statistics is also of great importance to medical science. For the best development of this science the medical profession should be placed in full possession of all facts regarding the numerical relations of diseases and deaths to age, sex, nationality, race, social conditions, occupations and locality. Such facts can be supplied by vital statistics, and by vital statistics alone.

RELATION OF VITAL STATISTICS TO PUBLIC HEALTH.

While the importance of vital statistics for the reasons already given cannot well be overestimated, yet by far their greatest value is to be found in their relation to public health work. Vital statistics are to the sanitarian what the indicator card is to the engineer. They show the maximum and the minimum pressure of every preventable disease. They show the relation of varying lengths of stroke and foot pounds of energy in the conflict against these diseases as the cycle of the ages rolls on. And, finally, they show the brake horsepower developed and they plot the efficiency curve of every kind of health work.

AN INDEX TO THE KIND OF WORK.

Our present methods of public health work are of necessity crude and erratic. The work is done "here a little, there a little," without the guiding hand of facts and figures to indicate the efficiency of any particular line of work. If comparative vital statistics were available it would soon be possible to determine upon the line or lines of least resistance, and we might fight it out along those lines first. Or it would certainly indicate the economic limit, beyond which to endeavor to drive any particular death rate lower would be to expend more money than the reduced death rate is worth in capitalized human lives. What health officer can intelligently attack the greater problem of public health in his town, city, county or State without knowing where to make the attack? As it is, who would dare say whether the present work and expenditure in the fight against tuberculosis would net a greater saving in lives, health, happiness and efficiency than similar work against typhoid or malaria, or some other disease? Under the present conditions, who can intelligently apportion the economic amount that should be expended for any one purpose?

AN INDEX TO THE EFFICIENCY OF THE WORK.

Then again, vital statistics furnish us the only accurate means of determining the relative efficiency of different methods of public health work. For example, how can you know definitely through which of the several means of attack tuberculosis can be most efficiently combatted in North Carolina? Is it by means of visiting nurses or dispensaries, public lectures or literature, sanatoria or by some other

means? Intelligent answers to these and kindred questions can be found only by means of comparative vital statistics. Certainly throughout the one hundred counties and the twenty or twenty-five sizable towns in our State, each working under its own health officer, all the different methods of combatting any particular disease will be tried out. From the vital statistics of this varied work will result a wealth of public health knowledge for this State, and peculiar to this State, such as we should never be able to obtain otherwise.

Now, the public is always interested in and it has a right to know how its affairs are administered. This should be especially true of that department having charge of the State's greatest wealth—its health. In the not far distant future the work of the sanitarian, like that of the designing engineer, will be judged not by the surface polish, paint and nickel plate, nor by the grandstand, spectacular plays, but by the indicator cards of vital statistics that he is able to produce. In other words, he will account for his stewardship in hard, cold facts and figures. Instead of being asked for voluminous reports from this department and that, he will be asked to show the yearly death rate for his town, city, county or State, and to make comparisons of total death rates and of the several death rates from preventable diseases. That will be report enough. His story will be told, and little comment will be needed.

Let us not forget that "competition is the life of trade." This is true in many other things besides business. With accurate vital statistics, public health work in the matter of reducing death rates and furnishing low morbidity report will of necessity become, to a greater or less extent, competitive between certain towns, counties and even States. This is no idle fancy. This state of affairs is already in progress where vital statistics are kept. Would that we had more of it. The sooner we get politics out of public health work, and the sooner we get such competition based on vital statistics into public health work the better it will be for the public.

The full value of vital statistics will not be realized the first year such registration is established. Nor will all the benefits be appreciated in five or ten years. Their value will increase with age. The point, therefore, to be borne in mind is that the sooner we begin the registration of these statistics the better.

THE PRESENT LAW.

A word now in regard to our present vital statistics law and its application and relation to public health. In 1909 a bill was passed requiring the registration of deaths in towns having a population of one thousand or more. Not a cent was provided in this law for the payment of the overhead charges of the central office. The first year in which this law really became effective was 1910. The total population affected in the State was 350,000, or less than one-sixth of its entire population. In 1911 this law was amended, making all towns having a population of five hundred or more registration towns. Still no direct financial means were provided for carrying on the work of collecting and tabulating these statistics. No valuable returns, of course, can be secured from such towns before 1912.

PRACTICAL APPLICATION OF THE LAW.

Now, by a careful comparison of the total death rates and the preventable death rates in our registration towns with similar returns from the other registration towns in this State and elsewhere, we are able to point out to the town authorities, where certain death rates are high, the facts and figures in the case, and to give them specific information in regard to remedying the conditions producing these excessive death rates. This work is being accomplished with considerable success, considering its newness and its limitations, and bearing in mind the fact that no special provision was made for carrying out this law to its fullest extent. Enough, however, has already been accomplished to satisfy those ac-

quainted with the work with its immense possibilities. In the meantime, it will be the endeavor to accomplish all possible with our present law, and to await with patience the dawn of a better day when North Carolina may take her place as a total registration State along with such progressive States as Pennsylvania, Massachusetts, Ohio, New York, and lately our sister State, Virginia.

THE NECESSITY FOR COLLECTING VITAL STATISTICS.*

By HAROLD B. WOOD, M.D., D.P.H.,
Health Officer, Rochester, Minn.

One or the most effective methods by which the South may augment her rapid development is by asserting herself, by proclaiming the localities possessing good physical and healthful conditions, and by indicating that in certain communities efforts are being undertaken to discover and to correct defects. This is accomplished simply by the collection of statistics and by the correct interpretation of these figures, with a correlation of the facts and factors in order to determine how to improve conditions. Statistics are simply an advertising medium. If the figures show excellent conditions, they should be published to teach people the satisfactory localities for homes or industry. When the figures unexpectedly reveal unhealthful conditions, these statistics should be known that efforts to improve conditions may be forthcoming. Good or bad, vital statistics, if honest, always are helpful and useful, by revealing the hygienic development or the sanitary needs of a community; they tend to raise people out of their lethargy, ignorance or indifference. They prove the health advantages of one locality, or else explain how the health conditions of another community may be improved, and in either instance a commercial and residential advantage results.

In introducing a territory to prospective settlers the necessity of having complete statistics in all matters which pertain to health is becoming more and more apparent. The proprietors of large industries, having hundreds of employes under their care, appreciate that to keep these workmen at the highest efficiency means to keep them in health and strength. When seeking localities for their factories or industries these proprietors demand local conditions of health and freedom from preventable disease. They desire records of morbidity and mortality rates as much as information of water supply and shipping facilities. When these local health rates cannot be produced, the proprietors tend to seek localities which are shown by statistical records to be safe. These careful business men, with capital and with a large force of employes, are the ones who are needed and welcomed by the growing South. Is the South getting ready to receive them?

One of the foremost preparations for progression should be the complete registration of births, deaths and cases of preventable disease. Morbidity statistics are of more economic value than those statistics which relate only to births and deaths, but, being much more difficult and complicated in their collection, they are not attempted until the registration of births and deaths is put upon a smoothly-running permanent basis. Much, however, can be learned from the birth and death rates alone, but the necessity for these must be realized by both the general public and physicians before very complete returns can be expected from them.

Every child when born has a few unalienable rights, which include the right to be fed and cared for, and the right to be legally recognized as a real citizen of the community. Help-

less at first in asserting his demands as a child, he later regrets that he was neglected or else is grateful to his parents and to his physician for the necessary attention.

The correct and early registration of his birth becomes a necessity. In a matter of inheritance it may become necessary for him to prove his age, to prevent a younger brother from asserting his alleged rights. As frequently occurs, he may be required to offer proof when he shall become of age, that the inherited estate may be properly disposed. It may be necessary for him to establish legal proof of his legitimacy, or that a certain man, now divorced from his mother, was his rightful father. Living in a foreign land it may be required of him to give legal proof of his parentage, that he may have just claim to an estate from his relatives recently deceased.

In enforcing the provisions of the child labor laws in different States it frequently becomes necessary to establish proof of age. If a boy goes to another State to enter a promising vocation and cannot prove that he is of an age which makes the position legal, his statement of age may not be accepted and the position lost. Various schools, colleges and institutions, many benevolent homes, or training schools and orphan homes have an age limit for admitting applicants or for graduation. Many of these require a copy of the birth certificate. If none is obtained the applicant is either rejected for a year or two, or is permanently debarred. Different branches of the government service require applicants to be between definite age limits. Should an applicant appear too young or too old, he is required to furnish a copy of his birth certificate, and without that rejection is almost certain.

If the birth of a child is not officially recorded, a legal certificate cannot be produced. The attending physician may have died or moved away, or his record or memory or statement may not be accepted. If there was no physician in attendance the matter is furthermore complicated. It does not necessarily require a physician to make a report to the official registrar of statistics. A midwife or anyone who was attending or who was present may do this. That report would be more legal and acceptable than simply writing the notice in the family Bible. The old family Bible may become lost before the proof of birth is needed, and, besides, the records made in Bibles have been known to be dishonestly changed or not to be recorded correctly, to establish a point of legitimacy or for heirship.

Failure of legal proof occasionally results in a forfeiture of office or position. A judge in Vermont was required to furnish legal proof of his age before assuming office, and finding his birth had not been registered, was obliged to forfeit the high office to which he was elected. A desirable man appointed to the New York police force was refused the position only because his birth had not been legally registered and he could produce no proof of his age. In another instance in a suit over property, the age of one of the heirs became of prime importance. His birth had not been registered, but he was able to introduce witnesses who testified that he was born the same day as a certain neighbor's calf. The calf was valuable and its birth had been registered.

The record of a birth settles one's rights to the elective franchise. The right to vote is frequently disputed, a man being challenged for age. With a registered birth the necessary evidence to secure him a ballot is secure. In applying for a civil service position this same individual may be required to prove his age. Citizenship is proved by a birth certificate. The immigration laws require all foreigners coming into the United States to have at least a certain sum of money on their person, designating the minimum amount. Should an American citizen arrive without the required amount it may be necessary for him to prove his citizenship. He may be detained in the station until the information is obtained. If the person comes from a State which registers the birth this notice can be quickly obtained by

telegraph. Being born in any other State it may require days to establish his identity, or else be impossible.

The pension examiners require the age to be given to prove the identity of the soldier or heir. One man, deserving his Government's recognition of his services, learned through the agent that there were probably two men in the same company having the same name. Through a slight uncertainty and being unable to prove his age, he failed to receive the pension.

The advantage of having all deaths properly recorded are manifold. It is frequently necessary for heirs to present legal proof of a parent's death before a settlement of the insurance can be made. It is especially difficult to prove a death if the deceased was away from home in a locality where registration is not required. Pensions, business contracts, personal liability and life insurance claims depend very largely upon indisputable legal proofs of death.

Correct recording of the causes of death will prevent a claim of suicide or murder being made at some subsequent date. A sudden death occurring the first year after taking out insurance might be claimed as suicide by the insurance company in order to invalidate the policy. A correctly recorded death certificate might prevent this, thereby assisting the heirs to obtain their claim. In a probable case of murder the cause of death as gunshot or poison should become a matter of record, that it may assist in a later conviction. The requiring of the correct registration of deaths and the enforcement of burial permits increase the difficulties of concealing crime, and augment the possibilities of detection. The most prominent legal authorities declare as being in favor of the complete registration of births and deaths.

When an immigrant comes to America from a port which is infected with cholera, bubonic plague, yellow fever or smallpox, he is not detained at the port of entry if he has passed the period of incubation and shows no symptoms. His history is recorded by the Government and then the State or municipal health authority at his destination is informed of his intended visit. He can then be watched to determine if there is any danger of his transmitting the disease. Some similar cooperation between States is desirable, but is only possible where complete statistics are gathered. Interstate and intercity warnings are now practiced in some of the Northern and Eastern States, in regard to smallpox especially. This cooperation of cities, with the careful and exacting methods of collecting statistics, has much to do with making Germany one of the most healthful of countries, placing it far ahead of this.

A cooperation between the health officers of adjoining counties, or between a county health officer or registrar and a health officer of a city within his county, will assist much in protecting the local public health. When there is an outbreak of any transmissible disease in a county the health officer should be notified. If this outbreak is apt to influence any municipality within that county, which has a local health officer, notice of the danger should be dispatched to him. If a city water supply is obtained from a stream or river and if there occurs a typhoid outbreak up that stream, or on its tributaries, the county health officer should be notified of this fact, and by him a warning of the possible contamination of the water supply be sent to the city physician. The latter then adopts such measures as are necessary to prevent the public becoming endangered. The same would be true for an outbreak of smallpox, diphtheria, scarlet fever, meningitis or any other disease which may arise in the rural districts and be conveyed into a town to the jeopardy of the town's people. When physicians report to the county health officer cases of communicable diseases which are outside but near towns, they should be especially careful to state the occupation of the patient or household, if this is of the nature of supplying milk or other articles of food which might transmit the contagion to the town. This information, with the name and

address of the patient, will assist the city health official, when reported to him by the county man.

These menacing rural outbreaks should be reported by physicians, but any correct information received from any individual is both acceptable and helpful. The reports must be correct and the diagnosis not misleading, however, or too much of the health officer's time may be needlessly taken up in confirming the rumors.

Statistics are the health officer's ledger. Conversely in determining from classified statistics what public health work is needed for a community, the subsequent collection of later statistics and a comparison with the previous rates, show what has been accomplished. A State or municipality learns what there is to do, works and then takes account of stock to learn the net results. The account of stock is the gathering of statistics, and unless most carefully and exactly done these will be misleading and worse than useless. The vital statistics of the different towns and States must be recorded, according to a uniform standard, else a comparison of one locality with another cannot be drawn.

The residential desirability of a town is indicated by the infant mortality and the freedom from transmissible diseases. There may be a large number of infants dying, but unless a comparison is made with the number of births little can be learned of the local causes of infant mortality. The complete returns of births are required to determine if these deaths of the infants constitute one-half of the babies or only one-tenth. It is not simply the number of deaths of babies, but the proportion of the living babies which die, which is required. These cases of infant illness are then plotted according to locality in reference to milk supplies and according to density of population, nationalities and employment centers. Also, with the diseases of children, little can be gathered from the mortality alone. A small town last year had but three deaths from diphtheria; there were, however, sixty cases, and there remains now a danger from the existence of many carriers in the community.

To determine the health conditions of a locality the reporting of deaths alone is not sufficient. There may be a mild outbreak of typhoid fever or the professional care given may be exceptionally favorable. In this case a low mortality rate would not lead the health authorities to suspect a town as being typhoid-ridden, and no precautions would be taken there until the morbidity reports have been compiled. Then, and only then, with the complete collection of all cases of transmissible diseases, as well as the deaths, will the most essential and successful public health work be done in a community. This compiling, comparing, plotting and searching of reports of cases and deaths, as a means to discover causes to eliminate, constitutes the work of the epidemiologist, and becomes the most important, economic and effective necessity for the collection of vital statistics.

A MANUAL OF PERSONAL HYGIENE.

Fifth Edition, Revised and Enlarged. Proper Living upon a Physiological Basis. By Eminent Specialists. Edited by Walter L. Pyle, M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. 12mo of 516 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, $1.50 net.

This is a volume of 516 pages profusely illustrated by diagrams and drawings. It is the joint production of ten well known authorities on hygiene, among whom is our old friend, Dr. Harvey W. Wiley.

The plan of the work is to give the hygiene of the different organs and appendages in separate sections and by differnt authors. Thus "Hygiene of the Digestive Apparatus" is given by Charles G. Stockton, M.D., of Buffalo; "Body Posture," by Dr. Joel E. Goldthwaite, of Boston; and so on to the end. The book occupies a unique place in the necessary equipment of every health officer and of most modern physicians, and every teacher of hygiene in schools and colleges will find it an invaluable source of information and ideas. It deserves geenral patronage.

FIBROID TUMORS OF THE UTERUS: THEIR TREATMENT.*

By J. HUGH CARTER, M.D.,
Memphis, Tenn.

The diagnosis of tumors is one of the most interesting and important parts of a proper medical training. The family physician should be as well informed, if not more so, in this matter as the surgeon and gynecologist, because to the former are exhibited the often small and apparently innocent new growths of his patient at a time when a correct diagnosis, followed by a prompt treatment, will result in many instances, if not in a permanent cure, in relieving the patient of a great deal of untold suffering, and the possibility of prolonging her life for many years, while the expectant attitude will only too often mean delay until such a time that treatment is of no use.

Fibroid tumor of the uterus is a nodular growth, springing from some portion of the uterus, usually, but not always, above the cervix, and originating from the muscular wall, and varying in size from a microscopic node to a mass filling the pelvic and abdominal cavities (Dr. Kelly).

The classification, according to their structure, are myomata, fibromata and adenomyomata, according to the tissue that predominates in each. Classed according to their situation, are (1) subserous, including intraligamentous and tumors of the cervix; (2) interstitial; and (3) submucous. They may be single or many. The natural history of all varieties is about the same and varies but little with the proportion of the elements. I shall, therefore, consider them as simple fibroid tumors of the uterus.

Fibroid tumors of the uterus are benign in the sense that they do not, like cancer, infiltrate surrounding tissues or infect the general system.

Fibroid tumors are usually loosely attached to the surrounding uterine wall, and are covered by loose cellular tissue, forming a capsule, from which they may be easily detached. Blood vessels, usually of small size, connect the tumor with its capsule and furnish it with nourishment.

Adhesions between the tumor and its capsule are the result of an inflammation.

As we have said, all fibroid tumors originate from the uterine muscle; therefore, in the beginning, they are interstitial; but if the tumor grows upward under the peritoneum, it is called a subperitoneal fibroid.

In this class usually the greatest part of the tumor is outside of the uterine wall and covered by very little uterine tissue. Their size may be large or small, and, as a rule, the larger the tumor the more it is separated from the uterus. Instead of growing under the serosa, if it separates the peritoneal folds of the broad ligament, it is called an intraligamentous fibroid. Therefore the tumor is outside the peritoneum, and it may fill the whole pelvic cavity, pushing the uterus before it, destroying anatomical relations and exerting most disastrous pressure upon blood vessels, nerves, uterus and other pelvic structures.

In some cases the tumor grows from the posterior aspect of the supra-vaginal cervix, passing beneath the bottom of Douglass' pouch, pushing the peritoneum above it, and becomes a retroperitoneal tumor. Again it may grow from the anterior aspect of the cervix, and as it extends upward, pushing the vesico-uterine fold of peritoneum above it, and dragging up the bladder, that viscus is sometimes found spreading out upon the front portion of the tumor, extending as high as the umbilicus. Therefore we should always be very careful on entering the abdomen over a large tumor.

*Read before the Section on Surgery of the Southern Medical Association, Hattiesburg, Miss., Nov. 10-12, 1911.

Interstitial fibroids are situated in the wall of the uterus and surrounded by a layer of uterine muscle. They may or may not alter the external surface of the uterus, but the cavity of the uterus is nearly always deeper and wider.

The submucous fibroid grows toward the uterine cavity, and may extend into it, becoming an intra-uterine polyp. This form of tumors occasion the greatest changes in the shape and dimensions of the uterine cavity. Uterine contractions may be excited by pressure of the polyp and in time be expelled from the uterus "en mass;" being exposed through the vagina, may become infected and undergo suppuration or sloughing, and degeneration may take place because of poor blood supply.

They are usually single in number. Fibroid tumors of the uterus, as a rule, are of slow growth. In some cases it may be five, ten or fifteen years before the tumor attains the size of a fetal or the adult head. Sometimes it appears to be of limited growth and early attains its maximum size, or it may not enlarge any after it has been discovered by the patient herself. In other cases it steadily grows for years until it fills the abdominal cavity, and may render the woman helpless from its weight and pressure upon vital organs, and finally the tumor may run its course in a few months, especially the fibro-cystic variety.

At times they seem to grow very rapidly just before the menopause, and they usually enlarge during pregnancy and go down after delivery.

Just before each menstrual period they increase in size, and diminish rapidly when the flow has ceased. Fibroid causes marked changes in the body of the uterine muscle and endometrium. The cavity is increased in length and breadth, and the muscles hypertrophy resembling the uterus during gestation.

The interstitial and submucous tumors are accompanied by the greatest uterine enlargement. A great increase of the blood supply accompanies the hypertrophy of the uterus. Therefore the uterine and ovarian arteries are very much enlarged, as well as the venous system. There are also changes in the endometrium. It becomes thickened and indurated; also the tubes and ovaries are involved in the form of cystic changes—cyst of ovary hydrosalpinx, pyosalpinx or hematosalpinx—that are nearly always caused from salpingitis.

Fibroid tumors are the most common of all uterine growths. It is said that from twenty to forty per cent of all women reaching the age of fifty years have fibroid tumors in some form. They may occur at any age, but usually most frequently during the years of sexual maturity; that is, between the ages of thirty and fifty, being rare before twenty and after fifty-five years of age. They are found quite as often, if not more so, in the unmarried as the married. They are more frequent in the negro than in the white, but it is said they never occur in Africa. We have never been able to prove the cause of fibroid tumors of the uterus, but have many theories. The most plausible ones, I think, are: (1) An infection of the uterine mucosa, giving rise to a subacute inflammation, causing proliferation of the round cells, which are transformed into fibrous tissue; (2) heredity has been supposed to play an important part in the causation of fibroids, as two or more of the same family have had tumors removed from them; (3) by a residue of misplaced fetal tissue, according to Caheiheim's theory.

Fibroids are liable to several forms of degeneration—namely: First, fatty; second, mucoid; third, cystic; fourth, calcification; fifth, septic infection; and, sixth, malignant changes.

(1) Fatty degeneration occurs in about three per cent, possibly due to an arteriosclerosis and diminished blood supply or increase of fibrous and hyaline tissue occurs to an extensive process when necrosis takes place.

(2) Calcification or uterine stones are found in about one and one-half per cent, and said to be due to a deposit of the phosphate and carbonate of lime.

(3) Mucoid occurs in about three and one-half per cent, and is due to the effusion of mucous material between the muscle fibres.

(4) Cystic occurs in about four per cent, and is due to the breaking down and liquefaction of areas of degeneration.

(5) Septic is due to bacterial infection, entering through the vagina, bowels and blood and lymph channels.

(6) Malignant occurs in about four per cent, and is due to continuity of tissue or metastis.

Therefore all cases of fibroids of the uterus should be watched closely.

Taken as a whole, it is said that changes take place in fibroids that seriously endanger the life of the woman in about eighten per cent. Sterility, abortion and difficult or impossible labor are caused by uterine fibroids. Conception is impeded on account of the displaced or distorted uterus, hemorrhagia and discharge from the uterus. Labor is rendered impossible at times by tumors obstructing the pelvic canal, when Caesarian section has to be performed. The size of the fibroid and the severity of the symptoms always increase during the active sexual period of life. It is very unusual for favorable retrograde changes or the permanent disappearance of symptoms to occur during this period. In a woman with fibroids the menopause is usually delayed for five to fifteen years beyond the normal period; this is a very important fact to be remembered in the prognosis and treatment.

In the majority the growth of the tumor is stopped at the menopause. It may in some cases entirely disappear, or it may remain as it is through life without any further trouble to the woman. But this is not always the case, and it may continue to grow and give trouble until driven to an operation. It is said that tumors have developed after the menopause. There is usually a decided increase in the size during each menstrual period.

The symptoms of fibroids are pain and hemorrhage with its resulting sequalae—constipation, leucorrhea and frequent urination, sometimes retention of urine.

Hemorrhage may be in the form of menorrhagia or metorrhagia, most frequently the first.

It is the chief symptom of fibroids of the uterus, and is present in most cases of all kinds. The hemorrhage may occur at any time during or between the menstrual flows. It is most frequent in the submucous variety, less so in the interstitial form, and rarely, if ever, seen in the subserous form. However, most cases of fibroids are multiple; therefore it is not easy to say which form of tumors predominates in a given case of hemorrhage. The hemorrhage may or may not be alarming in amount. It is said to be caused by an increased area of the endometrium accompanying the uterine enlargement. I would add, and pressure on adjacent pelvic structures. The size of tumors have nothing to do with the amount of hemorrhage. Between hemorrhages we may have a profuse, watery discharge from utricular glands, requiring the wearing of a napkin at all times.

Pain usually occurs in all fibroids of the uterus, but may not. When it does it is variable in amount and in many forms, as dull, boring, sharp, cutting and bearing down often referred to the sacrum and top of the head. It is usually increased during the menstrual flow, and may only be present at this time. The pain from pressure is very bad at times.

The diagnosis of uterine fibroids is made from a study of symptoms and from the physical examination. If the tumor is large, hard and irregular, it is easy, of course. This is all done by bimanual palpation. When the tumor is small and interstitial, a local induration and slight elevation may be felt. To tell whether or not the tumor is connected to the uterus is done by placing the tip of the finger in the vagina on the cervix and the other hand on the abdomen. If, on moving the tumor with external hand, the cervix moves at the same time, we are sure of connection.

Between fibroids and ovarian cyst, position of patient and percussion, live flatness over fibroid and dead flatness over cyst. The uterine sound helps out at times, but we should be very careful in its use, as it determines the length and irregularity of the uterine cavity. Fibroids have been mistaken for the pregnant uterus, but not as often as the reverse; and the woman has had her abdomen opened for fibroid when a normal pregnant uterus was found. Once in a while we have both. Usually the differentiation is not hard if we will keep in mind:

(1) The difference in menstruation.

(2) The difference in enlargement of uterus.

(3) The difference in softening of uterine walls.

(4) The difference in softening of lower segment.

(5) The difference in amount of nausea.

(6) The difference in frequent examinations.

(7) Fetal heart sounds.

Prognosis depends as to kind, situation and size of tumor, age of patient and form of degeneration and complications, hemorrhage, anaemia and acute infection.

Treatment—It is now agreed that the only curative treatment for fibroid tumors is surgical; therefore all other forms of treatment are palliative, but it is none the less important on that account.

I have said that fibroids usually increase very much in size just before and during menstruation, when pelvic congestion is greatest, and diminishing in size just after it is over. Therefore anything that tends to lessen or relieve pelvic congestion lessens the size of the tumor. Upon this fact depends the medical treatment.

The course to be pursued should be decided upon the following facts: (1) Size and situation of the tumor. (2) The complications, such as the infection of the tumor itself and inflammation of the pelvis with ovaries and tubes. (3) The amount of hemorrhage. (4) The amount of pain. (5) The rapidity of growth and symptoms of degeneration. (6) The age of patient, undue menstrual distress and the pressure symptoms.

Fibroids without symptoms or complications require no treatment. When the only symptom is an excessive menstrual flow, rest in bed for three or four days at each menstrual period will usually suffice. When the woman is young and is anxious to bear children, the paliative treatment is justifiable. However, she must be told that conception is less liable to occur, and if it does she may abort, and the tumor grows more rapidly during gestation. The same is true in a patient we expect to reach the menopause soon—that if she does fairly well until then she may go on without further trouble. At the same time the woman must be told that the opposite may, and usually does, occur, when an operation has to be performed.

In the submucous and interstitial form sometimes a thorough curretment and cauterization, followed by hot vaginal douches and rest in bed, gives marked relief, and may carry the patient over the dangerous period. Therefore we see that medical treatment is only palliative and does not offer our patient a cure.

The curative treatment is operation by doing a hysterectomy, the danger of which is only from one to five per cent. Sometimes we are justified in doing a myomectomy, especially in a young woman who is anxious to become a mother. This operation is more dangerous than hysterectomy.

The treatment of my own cases—thirteen in number—was as follows:

Seven subperitoneal, two interstitial, three intra-ligamentous, and one mixed.

In ages they varied from twenty-two to sixty years. Occurring in single and married women without children, seven; married and mothers of children, six.

Three patients have been treated medically, by rest in bed, hot douches, tampons and curetage. The remaining ten I operated upon

by doing a hysterectomy in nine and a myomectomy in one, each of which made nice recoveries.

DISCUSSION.

By the Chairman: Gentlemen, the subject is now before you for discussion.

Dr. S. M. D. Clark, of New Orleans: I think the question of fibroids is an intensely interesting one. We have an enormous clinic in this work in New Orleans in the Charity Hospital, and we know what our statistics show. At Hoboken they have not made any such observation. Evidently they are not so different from ourselves, because there is no such difference in proportion. The doctors seem to believe some in medical treatment of fibroids. In my belief, there is no place in the abdomen for a fibroid. It should be out. When we consider the many complications that may arise, and the more careful the pathological examinations that are being made, the higher percentage of malignancy. For instance, McDonald has looked into the question, and whereas it used to be put down eight-tenths of one per cent it has gone to three or four per cent. This item we must consider. Another fact is this: In a great proportion of our cases we see affections of the adnexa. The doctor did not touch upon that. We find at least 80 per cent of fibroid tumors have adnexal complications. The way I put this thing up to a patient who is not suffering any definite symptoms from tumor, is to pass over the possibility that she may recover, and tell the patient that, in my opinion, there is but one procedure, and that is to remove it; but if you assume the responsibility of the conditions that might arise, you relieve me of the responsibility, and keep the tumor at your own risk, if you want to.

The doctor mentioned the fact that nearly all fibroids have hemorrhage. I believe he is wrong I don't think over sixty per cent of the cases that have come into my hands have had hemorrhage. I have heard men with lots of experience claim that they rarelv see a fibroid without hemorrhage, but I have seen a large per cent—at least 40 per cent—without hemorrhage.

I believe the question of diagnosis—early diagnosis—is important. Then as to sutures, I am sure in my early experience in this work I tied my sutures too tight. I got my idea from Dr. Mayo. I took the hint from him, and my cases have run smoothly since I have adopted it.

The question is such a big one, and there are so many points to be considered, that it is impossible to touch them all, but I do believe we must keep the possibility of malignancy more in mind. The more our specimens are being looked upon, the larger the percentage, and I do not look upon fibroids as innocent tumors by any means.

Dr. Smythe, Memphis: Dr. Carter has presented us with the resume of the literature on the important subject of fibroid tumors of the uterus, and I can add but little to what he has had to say. Hemorrhage is a very common and important symptom of fibroid tumors of the uterus, and exists probably in seventy-five per cent of cases as menorrhagia, the period lasting from six to ten days and not from two to five, as in normal menstruation. Sometimes, in the case of sloughing fibroid, hemorrhage may occur at any time—not so in cases of subserous or interstitial fibroids. Menorrhagia in fibroid cases runs along over some years—generally during the child-bearing period.

In cases of cancer of the endometrium, where the cancer of the endometrium occurs prior to the menopause, there is no menorrhagia in such cases. The hemorrhage occurs between the periods sometimes, however, and there is a slight increase in the flow during the period—not often nor marked when occurring.

Fibroid tumors of the uterus are classed as benign tumors. They are benign in so far as they are not cancerous, but they are not harmless. Medical treatment avails nothing, and the tumor should be removed. It is not a question of whether the tumor be large or small. The small tumor may produce, and often does, more pain and discomfort than a large one. The location rather than the size is the important consideration. Because of the complications and degenerations to which such tumors are subject, prompt removal is the proper treatment.

By the Chairman—Dr. Carter will now close the discussion.

Dr. Carter—I thank Dr. Clark and Dr. Smythe for their very liberal discussion. This subject is a broad one, and hard to go over in the short time that one has to devote to a paper of this kind. However, I think Dr. Clark and Dr. Smythe both misunderstood me. I stated plainly that the only treatment is surgical, but that there was a palliative treatment, and I thought that sometimes in certain conditions palliative treatment was justified, and that I gave that palliative treatment, after I found, in my experience, that in spite of all I say they will not permit me to do an operation, but will submit to go to bed for a week or so. In certain cases it does give relief, when there are no serious conditions.

Now, in regard to the negro and whites, I want to say that so far as I am concerned I agree with Dr. Clark that in the number of cases that I have seen, negroes predominate. In my experience at the city hospital I rarely see white women. Nearly all of them are negroes in the charity hospital at Memphis, but in my private practice I do not do much negro practice, and have only had one case of a negro with a fibroid tumor.

In regard to hemorrhage, I said that we did have menorrhagia. We have, you may say, a prolonging of the menstrual period following sometimes. It is not always that we have any hemorrhage at all, but at the same time the period is extended and more profuse.

In regard to infection, I believe I said that the statistics are based on the reports of different men and different hospitals. The percentage is put down, I think, at six per cent—between five and six per cent, if I remember. I know that in Kansas it is put down between four and five per cent, or something like that.

ABDOMINAL AND PELVIC DRAINAGE.*

By E. P. HOGAN, A.M., M.D.,
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It is not my purpose in this paper to discuss the drainage of any particular disease or condition of the abdomen or pelvis, but rather to consider with you briefly the history of drainage and then some of the fundamental principles of abdominal and pelvic drainage.

The history of drainage begins with Hippocrates. He advocated the use of the tube in the treatment of pleural effusions. Celsus used it in treating abdominal ascites. These tubes were very crude, being made of lead and brass, and were conical in shape. After the second century little or nothing is known of the drainage tube until it is rediscovered in the fourteenth century for the treatment of ascites. In the sixteenth century gold and silver tubes, provided with a collar flange were used; the same tubes were used in the seventeenth century. Heister, in the eighteenth century, used, in conjunction with the tubes, wicks, which was the first application of capillary drainage. At the close of the eighteenth century drainage was widely known, but the fundamental principles of drainage were unknown and the methods were crude and undeveloped.

Abdominal drainage, even at the beginning of the nineteenth century, was confined to the treatment of ascites. At the close of the first half of the nineteenth century rubber tubes were used within the metal tubes. At this time McDowell's ovariotomy had attracted such attention as to cause operators to open the abdomen with less hesitancy, and the high mortality occasioned investigations as to its cause. It was found after laparotomies post-mortem that there were collections of pus or blood, designated as red serum, "that enemy of the ovariotomist." This collection was usually found in the cul-de-sac. Secondary drainage was done by Peaslee in 1854 through the vaginal vault. He, however, gives Keith credit for this in 1864. Wegner, in 1866, referred to drainage through the vagina as Sims' greatest contribution. In 1859 the soft rubber tube was introduced. In 1867 the glass tube was introduced and used in primary abdominal drainage. Through Sims' influence in 1870 primary abdominal drainage by means of the tube became prevalent. In 1872 Mikulicz, convinced of the physical and pathological impossibilities of ideal tube drainage, emphasized the danger of dead spaces, condemned irrigation through drainage tubes, and began the evolution of his tampon by the free use of gauze. Fritch and Sanger also used it extensively. Hegar and Kehrer advanced capillary drainage as being the solution of the entire problem. (Kehrer enclosed the gauze in a rubber tube or sheath to avoid adhesions. He also employed a double tube, or a tube within a tube.) There have been other contributions to the subject which are too numerous to be mentioned. Different forms of tubes have been suggested from time to time. Different materials for capillary drainage have been suggested and used with varying degrees of success.

Abdominal and pelvic drainage is becoming less frequent. Moynihan states: "At one time it was customary to drain after many of the simplest operations; if a few adhesions had been separated, or even the slightest damage inflicted upon the peritoneum, drainage was provided." Lawson Tait wrote: "When in doubt, drain." The result was the almost constant employment of a tube. Moynihan also states that the drainage of the peritoneal cavity is very rarely necessary, and, speaking generally, one may say that it is only for

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septic conditions that drainage is ever used.

The writer would emphasize the importance of Tait's words even now. For those without great experience doubt may be the prevailing mental attitude, but whoever the operator may be, if there is doubt, it is wise to drain. Cases in which infection does not exist should be regarded as clean cases and closed without drainage, but if an induced infection is feared, or if hemorrhage has not been controlled and capillary oozing is taking place or is feared, or extreme trauma has been inflicted upon the peritoneum and viscera, drainage should be provided—provisional drainage. Drainage in infected cases should be the rule. Exceptions should be made only when the surgeon is sure the source of infection has been removed without distributing the infection, or in cases in which he is sure the virulence of the infecting organism or organisms has been exhausted.

Von Ott, Heinricius, Delbet, Davis, John G. Clark, John L. Yates, Robert C. Coffey and others have made original experiments that are notable on the fundamental principles of abdominal and pelvic drainage.

"Clark demonstrated that fluids and solids may pass through the endothelial layer of the peritoneum, fluids in many places, the solid particoles only through the space of the diaphragm. He found the diaphragmatic portion of the peritoneum capable of absorbing much gross material. He found, too, by autopsy and on the living patient, that the drainage tract, no matter what material was used, always contained organisms of some kind. He also proved that there was frequently fluid pent up in the drainage cavity which was sometimes forced into the general cavity, producing peritonitis, and that in many cases in which drainage was used a sinus persisted six months or more.

"Basing his reasoning on these facts, he condemns external peritoneal drainage in most cases, and advocated postural drainage into the lymphatic system by elevating the foot of the bed twenty degrees, thus throwing the fluid against the diaphragm, where it may be absorbed by the large, open lymphatics."

"Yates, in his article on 'Local Effects of Peritoneal Drainage,' confirms the findings of previous investigators and makes the results more definite by his experiments. The experiments were with all forms of drainage, and by using many dogs he was able to definitely determine the time at which drainage from the peritoneal cavity ceases. By placing different forms of drains in the flanks of dogs, and then, in a certain number of hours, filling the abdomen through an opening at the ensiform cartilage with carmine solution, he was able to determine definitely that all forms of drains were closed so that absolutely no drainage from the peritoneal cavity would take place after six hours."

By quotations from many investigators and experiments of his own, Yates concludes that drainage produces a flow of serum (lasting from a few hours to two days) which, in quantity, is out of all proportion to the fluid in the cavity to be drained, but in exact proportion to the amount of drainage material inserted—Fowler's experiment—showing that the serum was poured out as a result of the irritation produced by the drains. From the work of other investigators, and confirmed by his own experience, he finds that gauze will not drain pus or blood—Maguire and Cole, and confirmed by others.

Moynihan, in discussing abdominal drainage of the peritoneum, states that it is temporary, and that all drainage material is speedily isolated and ceases then to do more than drain the cavity which it has produced. (Clinical Experience.) He quotes Yates as giving a very comprehensive discussion of the whole question. Yates' conclusions are:

Drainage of the general peritoneal cavity is physically and physiologically impossible.

The relative encapsulation of the drain is immediate.

The absolute encapsulation occurs early (less than six hours in dogs), and can be retarded, but not prevented.

The serous external discharge is an exudate due to the irritation of contiguous peritoneum by the drain.

There is a similar inward current from the potential into the general cavity.

This external exudate diminishes remarkably with the formation of encapsulating adhesions.

These adhesions, under approximately normal conditions, form about any foreign body.

Their extent and destiny depend upon the degree and duration of the irritation of this body.

Primarily fibrinous, these adhesions become organized in a few days (three days in dogs).

If the irritation persists, they become progressively more mature fibrous tissue.

After irritation ceases their disappearance depends principally upon a mechanical factor—the ability of the involved surfaces to pull themselves together or to be pulled loose.

Drains should be the least irritating, and should be gradually and finally removed as soon as possible.

Irrigation through drains is futile to prevent adhesions and is dangerous.

After a drain is inserted, all intra-abdominal movements should be reduced to a minimum.

As soon as the drain is removed, intra-abdominal activity should be stimulated to aid in the disappearance of the remaining adhesions.

Peritonitis, if not too severe, possibly aids in the rapidity of the encapsulation of the drain.

A drain in the presence of infection is deleterious to peritoneal resistance and should only be introduced to exclude more malign influences.

Postural methods, unless destined to facilitate encapsulation, are both futile and harmful, as far as drainage is concerned. This conclusion is disproven by Coffey and others.

Peritoneal drainage must be local, and unless there is something to be gained by rendering an area extra-peritoneal, or by making from such an area a safe path for least resistance leading outside the body, there is, aside from hemostasis, no justification for its use.

Coffey has performed original experiments showing the importance of two mechanical principles involved in peritoneal drainage—gravity and capillarity. Coffey says: "By experiment it has been found that ten gauze wicks will drain exactly ten times as fast as one over the edge of a basin or out of a cavity—Fowler's experiment. Therefore drainage will be in exact proportion to the amount of gauze passing through the external wound. In draining water over the edge of a basin, the flow ceases when the water reaches the level of the outside end of the gauze, but starts again if the piece of gauze is pinned to the end of the drain, and flows with a rapidity proportionate to the length of the external gauze below the level of the fluid in the basin, thus acting on the principle of a siphon. Gauze drainage must, therefore, be brought in contact with dressings or other absorbent substances if drainage is to be effectual. The same applies when the gauze is encased in that the end of the gauze must be in contact with the dressings."

He found, both experimentally and clinically, that gauze will not drain pus or blood from a basin nor from a closed abscess cavity. (Fowler and Yates.) "It will, however, drain either pus or blood from the free peritoneal cavity. Even coagulated blood or thick pus is liquefied by the excessive flow of serum, and is delivered to the surface in the form of a thin, red, non-coagulable fluid in the case of blood and a yellow fluid in the case of pus. Thus this seemingly useless flow of fluid serves the purpose of a solvent and at the same time acts as an irrigator from within out in a manner impossible by artificial irrigation."

"Gauze forms a splendid framework in the formation of a protecting wall, and an effective drain when in quantities large enough to prevent its being choked by granulation from the sides of the wound. Any attempt to remove

gauze prior to the fifth or sixth day is dangerous, as shown by Clark, who reported eight out of one hundred cases in which intestines were drawn out through the wound, and others in which walls were broken down so that infection occurred. Force should never be used in the removal of gauze, as it will almost always be loosened from the fifth to the sixth day by natural processes. By this time a definite wall is formed, and there is no danger of breaking open the cavity. Much of this difficulty is relieved by covering the gauze with protective tissue or split rubber tubes. One of the most effective and popular drains is the use of a number of split tubes or cigarette drains side by side, thus producing a double capillary action."

"I was early struck," says Coffey, "with the fact that either flank holds more fluid than the pelvis when the subject is lying perfectly level on the back." He experimented with several cadavers containing all the abdominal viscera and found that, in order to drain the fluid from the flanks into the pelvis, the body must be elevated to an angle of sixty or seventy degrees instead of thirty, but he was unable to determine accurately the degree necessary for drainage.

He showed by experiments that with the cadaver on its back the flanks are more than one inch deeper than the pelvis, and that in order to bring the lowest point in the flank on a level with the psoas muscle which forms the dividing line between the flank and the pelvis, the upper end must be elevated to an angle of fifty-one degrees, and in order to drain properly it would have to be elevated to an angle of sixty or seventy degrees. He cites four cases to illustrate insufficient drainage. His deductions from his own experiments and observations, and the experiments of Yates and others, are:

(1) Fluids are rapidly absorbed by all parts of the peritoneum; crude or granular matter is absorbed only through the lymph spaces at the diaphram. (Clark.)

(2) A drainage tract always contains microorganisms. (Clark.)

(3) Any form of drain is isolated from the free peritoneal cavity in a few hours. (Yates.)

(4) A drain causes a flow of serum by mechanical irritation which is profuse in proportion to the amount of drainage material in contact with the peritoneum. (Yates.)

(5) This flow is delivered to the surface only in proportion to the amount of drainage passing out through the wound. (Experiment.)

(6) Serum and pus accumulate around drainage only when the drainage at the outlet is less in amount than that contained inside, or when drainage is too small. (Experiment and clinical observation.)

(7) Blood and pus in quantity are never found in the neighborhood of a properly applied drain after forty-eight hours. (Clinical observation.)

(8) The flow of serum resulting from the irritation of a drain in the free peritoneal cavity dissolves blood clots and thick pus, leaving gauze drainage clean and white by the time the flow ceases. (Experiment and clinical observation.)

(9) Drainage placed within a walled abscess cavity does not excite a flow of serum; therefore blood and pus are not drained from formed abscess cavities by capillary action. (Experiment and clinical observation.)

(10) Small gauze drains are likely to be choked at the exit unless covered by a rubber tube or protective. (Clinical observation.)

(11) Extensive gauze drains are not thus affected, and act in proportion to the amount coming through the opening, but will only drain when it is in contact with dressing or clothing, or when its outside end is at a lower level than the depth of the cavity to be drained. (Experiment and clinical observation.)

(12) A tubular drain drains perfectly a walled cavity, or will drain the peritoneal cavity under the influence of gravity if it does not become choked, but will not drain uphill

except when the fluid is confined. (Experiment and clinical observation.)

(13) A single tube is much more likely to be choked by intestine and omentum than two or more parallel tubes. (Clinical observation.)

(14) There are three cavities or basins of the peritoneum to be drained—the right and left flanks, separated from each other by the spinal column, and the pelvis, separated from the flanks by the psoas muscles. Either flank holds more fluid and is an inch deeper than the pelvis, and its bottom is more than four inches below the top of the divide made by the psoas muscle. The body must be elevated to an angle of fifty-one degrees to bring the bottom of the flank on a level with the divide, and to an angle of sixty or seventy degrees to properly drain by the Fowler position. The entire abdominal cavity can be drained by a lateral position.

Coffey says: "A line drawn from the center of the surface of the perineum to the tip of the shoulder will pass through the deepest part of the pelvis and flanks." He says there are no independent cavities or basins between these lines, and as it is a well-known clinical fact that drainage should always be in contact with the parietal peritoneum on at least one side, he makes it a general rule never to place drainage between these lines except just above the pubic bones. (Cadaver and plaster casts.)

From a study of the literature of abdominal and pelvic drainage, with special reference to the fundamental principles involved, and taking into account the clinical experience and observation of such men as have had ample opportunity to give weighty opinions on the subject, together with my own experience and observations, I would conclude:

First—The experiments with reference to the drainage as done by Clark are doubtless true, but their application, as far as drainage is concerned, is erroneous. After investigating the subject somewhat extensively, I know of no surgeon who expects the diaphragm and peritoneum to take care of the pathological products which should be removed from the abdomen by drainage.

Second—The experiments of Yates are of the greatest value and are recognized as an explanation of some of the post-operative conditions that could not be accounted for previous to his experiments.

Third—While Maguire, Cole, Clark, Yates and Coffey all agree and prove by experiments that pus and blood are not drained by gauze or by capillarity, yet Coffey shows by experiments and clinical observations that the depleted serum, as referred to by Yates, performs a very important function in digesting or disorganizing the blood and pus in such a way as to cause it to be removed by capillary drainage, the serum itself acting as an internal irrigation. The importance of this point is of the greatest value to the surgeon in providing for drainage.

Fourth—The experiments of Coffey are original and emphasize the importance of postural drainage, which should be employed to the greatest advantage in every drainage case.

Fifth—Drainage should be of such a nature as to have the advantage of capillarity and gravity.

Sixth—In drainage cases the greatest advantage should be taken of the first few hours of the drain, and it should be in quantity sufficient to relieve the abdomen within twelve to twenty hours. This can be done by having the drain of sufficient size or having two or more drains. The dressing can be applied, according to some investigators, in such a way as to have the advantage of siphonage. Indeed, the position is taken by some that the dry dressing itself acts as a siphon. The first dressing applied should be sufficiently large to take care of whatever quantity of drainage may have to be removed until the next dressing is applied, which should be done within twelve hours. According to some, the dressing should extend even to the flanks, thus providing for siphonage.

Seventh—If blood appears on the dressing, it does not indicate that it has been removed by the drain, but, on the contrary, there must be hemorrhage and the blood is forced out by pressure.

Eighth—In uninfected cases the drain should be removed early and the provisional sutures tied.

Ninth—In infected cases the time for the removal of the drain will depend upon the personal equation of the surgeon. When the discharge ceases the drain should be removed. The time varies from twenty hours to weeks. My judgment is that the drain, if it is indicated and it is performing its function, should not be interrupted earlier than seventy-two hours, or from three to six days. By this time the leukocytes present in large numbers are beginning to degenerate, giving rise to ferments that digest the fibrin, thus permitting the drain to be removed without any damage to the drainage tract. It is stated by some that later—possibly after the third day—granulations grow into the gauze, again fixing it even more firmly, and it cannot be removed without exerting such force as to produce new avenues of infection. The drain in this time can be removed, or, in case two or more have been used, one or more may be removed, leaving the drainage tract free to contract, and the smaller drain can be removed gradually.

Tenth—Abscess cavities should be drained by a tube with the patient in the best posture to aid gravity.

Eleventh—Most surgeons are agreed that vaginal drainage should be limited to vaginal hysterectomy, and pelvic abscesses when opened through the vagina.

Twelfth—The greatest care should be exercised in dressing all drainage cases, so that no new infection can be introduced, and the drainage tract should be treated as a local extraperitoneal condition.

Thirteenth—Every drainage case should have the most scrupulous care in postoperative treatment, and such changes in the method of drainage as indicated should be made from time to time.

Fourteenth—Good and efficient drainage when indicated, will save life, but poor and inefficient drainage may and does hasten the end.

PUS TUBES, PELVIC ABSCESSES.*

By F. D. SMYTHE, M.D.,
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The salpingetides, except in a very small per cent of cases, due to such unusual causes as the tubercle bacillus, grippe bacillus, pneumococcus and the ray fungus, are the result of a bacterial invasion from without gaining entrance into the tubes, as a rule, via the vagina. Practically speaking, the responsible bacteria are the gonococci, streptococci and staphylococci.

Purulent salpingitis, when not due to some one of the unusual causes, is secondary to a similar infection situated elsewhere along the genital tract.

This article has to do with the purulent varieties of salpingitis only, as purulent salpingitis is that form of the affection interesting the physician and surgeon; the other varieties, while common enough, do not produce local disturbances sufficient to prompt the patient to consult a specialist.

The gonococcus stands at the head of the list of etiological factors and is responsible

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for about one-half of all the cases of purulent salpingitis. Of the cases dependent upon the invasion of this microbe, very few, if any, undergo a spontaneous cure, and it would prove a hopeless task to undertake the enumeration of the many and serious sequelae following its introduction into the female genital tract.

Next in importance and frequency stands the streptococcus and the staphylococcus. Infections resulting from the latter varieties follow labor at full term, abortions, accidental or intentional, and not infrequently instrumentation, particularly the operation of curettement of the uterus, which is done in many instances without due regard as to its advisability and with less respect to asepsis.

So far as pertains to the genital tract, we are safe in saying that the infection resulting from the gonococcic invasion extends by continuity of tissue alone, though not unmindful of the fact that this organism metastasized to remote parts through the lymphatics and blood stream, rarely, if ever, in such manner to the tubes.

The tubes become involved within a period of from one to four weeks after inoculation of the cervical mucosa, the portion of the genital tract primarily involved, in most cases of gonorrhoea in the female.

Argyrol stands at the head of the list of gonococcicides. It can be freely applied with safety. Early diagnosis is essential; otherwise successful treatment in a given case need not be expected to result from any line of treatment, however rationally outlined or zealously prosecuted.

Purulent salpingitis due to gonococcic infection is always bilateral. If the tubes be not simultaneously involved—and they usually are not—it is but a question of time, and a short time—from one to three or four days—until the subjective symptoms announce its spread to the opposite side, which suspicion will be verified by a digital examination. At this stage of the disease it has passed beyond the reach of medical treatment, with no tendency toward a spontaneous recovery.

The streptococcic and staphylococcic infections are more dangerous directly to life than infection due to the gonococcus. Primary purulent salpingitis due to those cocci are comparatively rare; more often we have intraligamentous or pelvic abscesses, secondary to lymphangitis, phlebitis, peri-lymphangitis, periphlebitis, the cellular tissue which is abundant, next becoming involved, finally eventuating in the formation of the abscess. The tubes, or tube, on the infected side may now, and occasionally does, become infected. Such infections are more dangerous than the gonococcic because of the tendency toward the development of a general sepsis. The temperature runs higher, local distress often greater, and much more tissue involved; nevertheless, cases of purulent salpingitis that undergo a spontaneous cure upon investigation will be found dependent upon other organisms than the germ of Neiser.

Purulent salpingitis is of gonorrhoeal, streptococcic or staphylococcic origin, except in the virgin. In virgins pus tubes are tubercular, sometimes primary, generally secondary to tuberculosis elsewhere. This variety of salpingitis constitutes about 5 per cent of the whole, hence is met with often enough to keep the physician on his guard whenever and wherever dealing with gross lesions of the tubes.

Diagnosis—A physician is justified in assuming a case of salpingitis following a surgical operation, or in an abortion in a woman previously healthy, to be of streptococcic or staphylococcic origin. Such cases are usually unilateral; later the whole pelvis may be found involved; the tubes are rarely, if ever, involved prior to the infection of the pelvic veins, lymphatics and cellular tissue. The swelling is lower down and inclines to a point between the rectum and vagina, vagina and bladder, or at some one of the other less usual sites, such as the loin, in the groin, or at the great sacro-sciatic notch. Such pointing is observed much earlier than in cases of gonorrhoeal origin. It is gratifying, indeed, to have

our clinical diagnosis so often confirmed by microscopical examination of a smear.

Gonorrhoeal salpingitis, with or without involvement of the pelvic cellular tissue, a history such as follows will usually be obtained, first exposure, sexual intercourse, followed within from one to six or eight days, generally the third or fourth, with a feeling of discomfort of the pelvic organs, increased heat, smarting, ardor urinae, later a heaviness of the pelvic organs, increased discharge, muco-purulent or purulent, in bad cases streaked with blood, bathing the vulva and perineum, slight elevation of the body temperature in general with a progressive increase in the severity of the local symptoms, finally pain in one or both sides of the median line. Usually one side antedates the other from one to two or three days. The uterus is at first movable, tubes enlarged and tender, trumpet-shaped. A little later the uterus will be found retroverted and more or less firmly fixed. Such a case is of gonorrhoeal origin; microscopic examination will always confirm the clinical diagnosis in a case presenting the above subjective and objective symptoms.

Prognosis—As to life, fair; as to recovery of health and restoration of function, gloomy. I feel safe in saying, after a somewhat lengthy and extensive experience in the surgical treatment of the affection, which is an alarmingly common one, that the next case experiencing a literal cure will be case No. 1 in the table of cases cured to date. Many patients experience a symptomatic cure after a time, and are seemingly none the worse for wear, if measured by physical pain; still, the silent evidences are as conclusive proof of the permanency of the damage inflicted as the finding of gonococcus—*i. e.*, a fruitless wedlock, endometritis, persistent, profuse discharge, dysmenorrhoea, tenderness on both sides and pain in the back, hydropsfolliculi, tubal pregnancies, etc. Some of the troubles mentioned often depend upon other causes, but the bald fact stands out prominently, and the universal verdict is that the gonococcus is the responsible organism.

Treatment—Prophylactic, expectant, operative. Prophylactic measures against gonococcic infection have never been successfully adopted, and probably will never be.

The social evil is the most fertile of all fields for the medical missionary. If the gonococcus could be eliminated as a causative factor in purulent salpingitis, the disease would be so rare as to hardly deserve a place in the nomenclature of diseases.

Young men should be warned of the certainty of contracting gonorrhoea by cohabiting with loose women. A campaign of education should be organized and vigorously conducted for the purpose of successfully combating the prevalent idea with the laity that the affection is a simple one and easily remedied. But few assertions are fraught with greater disaster, and none is further from the truth.

The one single ray of hope left us is the faith that we have in the ultimate acceptance of the advice of the physician by the members of the human family regarding all matters pertaining to health. The boys and young men should not be permitted to remain in ignorance concerning things sexual. They should be advised of the utter hopelessness of escaping infection when cohabiting with loose women—the liability to contracting incurable diseases—and they should be reminded, in the event of contraction of such disease or diseases, that the prospect of a cure is very slight at best. The outlook for radical reform along these lines is not particularly bright. Nevertheless, concerted and persistent effort on our part will most certainly bear wholesome fruit.

Purulent salpingitis dependent upon the other organisms are preventable in all cases coming under the care of the physician prior to the onset of the disease. The road to successful prophylaxis is not beset with dangers nor difficulties, except in cases of criminal abortion. The use of rubber gloves by the

obstetrician invariably and the practice of thorough asepsis by the physician would banish puerperal infections and infections following instrumentation.

During the acute stage of purulent salpingitis the disease should be managed by ordering the patient to bed immediately, there to remain until after the subsidence of the acute symptoms. The spread of the infection is hastened by muscular effort; often the deadline is crossed by an untimely assumption of the sitting or upright position; this applies more particularly to infection of the structures of the broad ligaments.

Where pain is great, interfering with rest and sleep, opiates should be given in moderate but sufficient doses to successfully combat same.

Saline aperients are indicated frequently during the treatment of the disease at this stage, and should be given freely when needed. Various other measures for the purpose of promoting the patient's comfort are resorted to by the physician, such as hot douches from low elevation, continued over a long period of time, without muscular exertion on the part of the patient. Hot water bags prove soothing in many cases; others, however, are aggravated by them, and they, in turn, are benefited by ice bag applications.

"In the event of sudden and general peritonitis at any time, regardless of the stage of the disease, no time should be lost in the immediate performance of laparotomy, the adoption of the Fowler position, and the institution of the Murphy treatment, continuous saline, with or without peptonoids, which method of treatment has reduced the mortality from 100 per cent to 60 per cent in the hands of the average man, and almost 100 per cent in the hands of some of the masters.

Vaginal Puncture, Incision, Drainage—In all cases pointing low down in the pelvis. Pain and immediate danger overcome, after which patient can often wait for operation and radical cure with safety. Where the pathology is extra-peritoneal—*i. e.*, the abscess situated between the broad ligaments, between the rectum and vagina, or between the bladder and uterus—the tubes and ovaries free from the disease, the abdomen should not be opened. Such cases are streptococcic or staphylococcic in origin and will recover if drained from below; not so with mucous-lined cavity tubes.

The time to operate and the route chosen in pyosalpinx and broad ligament abscesses are important questions and the surgeon is called upon to decide, and the mortality attending his efforts will be high, medium, low or practically nothing, according to the lack of or soundness of judgment displayed in solving the problem.

Surgical treatment in all cases having passed successfully through the acute or active stage of the disease, with the exception of those very few undergoing spontaneous recovery, should be operated upon as a prophylactic measure against the development of sequelae ensuing in cases of long standing.

Purulent salpingitis does not have its beginning in the tubes; neither does the disease end there. The ovaries are very often seriously damaged, becoming cystic or purulent, enlarged, prolapsed and adherent, the uterus descended, retro-displaced and more or less firmly fixed, incarcerated between the omentum and intestines in front and above, and the sacrum behind.

By early operation the patient is relieved of immediate danger incident to the existing pathology, and in most of the cases the complications noted only in delayed cases are prevented almost altogether, in many cases entirely.

In order to achieve the best results from operation, the section must be preceded by curettement of the endometrium. This applies particularly to chronic cases. In acute cases with abscess formation, the abscess pointing low down, whether tubal or intraligamentous, certainly parametric abscesses, should, in the interest of the patient, be drained through the vagina. No mortality attends the procedure, but 100 per cent morbidity. Uncomplicated

cases of pyosalpinx cannot be removed as safely, quickly or successfully by the vaginal route as by abdominal operation. I see no reason why the operation should be undertaken through the vagina. All acute cases of pyosalpinx swarm with virulent bacteria; a large percentage of the old cases contain sterile pus.

In the hands of competent operators, a mortality of about 10 per cent follows operation for pus tubes where the tube ruptures during the operation. The same class of cases operated upon by the same surgeon is attended with less than 5 per cent mortality where the operator succeeds in removing all infected tissue without rupture. *Every case of pus tubes or parametric abscess, regardless of its duration, should be treated as a case known to contain organisms capable of producing peritonitis in the event of rupture.. It is by such a course only that the risk of infection is reduced to the minimum.*

No surgeon, regardless of his experience or astuteness in diagnosis, can tell before operation precisely the nature and extent of the operation that he may be called upon to perform in a complicated pelvic case. He should frankly tell the patient, in the presence of a witness, that everything will be done that is found necessary to do in her interest—no more, no less. Under no circumstances permit the patient or friend of the patient to map out what you must or must not do in the way of operation. After having reached an understanding, exercise your best judgment in the premises, and be as conservative as possible compatible with thoroughness of work and the future health and comfort of the patient.

THE EARLY DIAGNOSIS OF FILARIASIS.*

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At the time when filariasis was differentiated from leprosy, the diagnosis was based upon the symptoms common to the advanced stage of the disease, that is, upon the appearance of certain phenomena in man caused by the mechanical obstruction to the flow of lymph such as filarial lymphangitis, filarial orchitis and hydrocele, filarial lymphangectasis, varicose lymphatic glands, filarial chylous extravasation, elephantiasis, either of the leg, scrotum, breast, arm or scalp; or as circumscribed elephantiasis in the form of pendulous tumors of filarial origin.

As our knowledge regarding the habit of filaria has been improved the diagnosis of filariasis has been based not only on the obstructive symptoms, but also upon the finding of the adult filaria (in cases of F. diurna) or microfilaria in the blood. In either case, as readily understood, the diagnosis depends upon the first part of the cycle, or the life of the parasite in man (or primary host). But the second part of the cycle, that which takes place in the secondary host, has proved in our results to be also valuable. As will be shown in another work, a live microfilaria may be detected in the body of the bedbug, cimex lactularius, one to eight days after the insect has been fed on filarial blood. This fact is of importance not only as a diagnostic value, but as a means of determining the condition of the place in which an infection is suspected, and also as to the possibility of this insect to be, like the mosquito, a secondary host of filaria and transmitter of the disease.

At the beginning of the studies on filariasis, it was a common belief that the embryos of F. Nocturna were found only at night in the

*Read before the American Society of Tropical Medicine, Atlantic City.

peripheral blood, hence the name, and the embryos of F. diurna only during the day, while the embryos of F. pertens were found at all hours. At present we know this rule to have exceptions. Our finding in one case of F. diurna and two of F. nocturna fully confirm this statement. It may be added, however, that the success depends upon the examination of larger amounts of blood, during the hours at which the embryos are found in small numbers in the peripheral circulation. If during this hour only a fraction of a drop is examined, as is usually the case in making fresh blood preparations, the result is usually negative, while in dried hemolyzed and stained blood films containing relatively large amounts of blood, a few microfilaria are usually found. This is illustrated in the following experiment:

In Table I, a twenty-four-hour cycle is shown of filaria nocturna. The blood was collected every two hours. In spite of examining two slides at each collection, the directly fresh blood method showed no embryos between the hours of 12 noon to 8 p.m.

TABLE I.

Filaria Nocturna, 24-hour Cycle.

Hour of Collection	—Dried Slides, Stained Preparations— 1st Slide	2d Slide	Average	—Direct Fresh Blood Preparations— 1st Slide	2d Slide	Average
12 noon	3 embryoos	1 embr.	2 embr.	0 embr.	0 embr.	0 embr.
2 p.m.	1 "	1 "	1 "	0 "	0 "	0 "
4 p.m.	0 "	2 "	1 "	0 "	0 "	0 "
6 p.m.	2 "	1 "	1+ "	0 "	0 "	0 "
8 p.m.	6 "	4 "	5 "	0 "	0 "	0 "
10 p.m.	75 "	67 "	71 "	3 "	5 "	4 "
12 m. n.	87 "	119 "	103 "	20 "	35 "	27+ "
2 a.m.	160 "	170 "	165 "	35 "	47 "	41 "
4 a.m.	160 "	140 "	150 "	40 "	56 "	48 "
7 a.m.	140 "	150 "	145 "	12 "	16 "	14 "
9 a.m.	25 "	23 "	24 "	3 "	2 "	2+ "

Another set of dried slide preparation in duplicate were made with larger amounts of blood by drying on the slide a thick film of blood, fixed, hemolyzed with distilled water or weak acetic acid, washed and stained with haematovylnn and oosin. At each taking about equal amounts of blood was collected. The results are as follows:

Acetic Acid Method: Based upon the fact that the finding of microfilaria in the peripheral blood depends upon the hour at which the examination is made, as well as upon the amount of blood examined, it was thought a larger quantity of blood would furnish a more efficient result. With such a point in view 0.1 to 1.0 cc. of blood were taken from the finger and collected in 5 cc. to 10 cc. of a 2 per cent acetic acid solution. After shaking and centrifuging, fresh slide preparations were made from the sediment and examined under the microscope.

The results obtained with this method was very satisfactory. Falaria embryos were found in the peripheral blood, regardless of the hour at which the blood was collected.

Of course the greater number of microfilaria were found between 8 p.m. and 8 a.m., in cases of F. nocturna, and between 8 a.m. and 8 p.m. in F diurna, as is usually the case, but in no case did we fail to find the embryos during the twenty-four hours regardless of the hour at which the blood was collected.

Furthermore, one case of F. nocturna, in which microfilaria were not found between 11 a.m. and 7 p.m. in six daily examinations, by taking ten drops of blood from the same finger, mixed with 5 cc. of a 2 per cent acetic acid solution and centrifuged, in the sediment several microfilaria were found in the proportion of about 20 per cubic centimeter of blood collected. The advantage of the acetic acid method may be illustrated with the compara-

tive result obtained with two cases of filariasis.

Case I—J. J. A., aged 20; a native of Porto Rico. During the summers of 1909 and 1910 had several attacks of lymphangitis on the right thigh, suspected to be filarial in nature. On June 24, 1911, when first seen by us, the blood examined made about 10 a.m. gave the following result:

Haemoglobin	80%
Erythrocytes	1,800,000
Leucocytes	6,200
Filaria embryo	1

Differential Count.

Polymorphonuclearilic	42.5%
Small lymphocytes	32.1%
Large lymphocytes	4.1%
Eosinophiles	19.0%
Basophiles	2.3%

The comparative result of the number of microfilaria found in a 24-hour cycle, the blood being collected every two hours, is given in Table II.

when first examined (on August 30, at about noon) gave the following results:

Haemoglobin	95%
Erythrocytes	5,500,000
Leucocytes	5,000

Microfilaria (two fresh blood slides) not found.

Differential Count.

Polymorphoneutrophiles	59.1%
Small lymphocytes	25.9%
Large lymphocytes	3.4%
Eosinophiles	8.7%
Basophiles	0.9%

This blood shows nothing of importance except an increase in the eosinophiles, which could be due to other causes than filariasis. The true nature of this, however, was determined by examining the sediment of ten drops of blood (collected in 5 cc. of a 2 per cent acetic acid solution at the same time), in which several filaria embryos, in the proportion of about 25 per cubic centimeter of blood collected, were found.

A comparative 24 hour cycle as above described was made. The results is shown in Table III.

TABLE II.

Case I—Filaria Nocturna, 24-hour Cycle.

Hour of Collection	—Fresh Blood Preparations— 1st Slide	2d Slide	Average	—Dried Blood Preparations— 1st Slide	2d Slide	Average	—Acetic Acid Method— Per cc. Blood
12 noon ...	0 embryos	0 embr.	0 embr.	2 embr.	11 embr.	1+ embr.	30 embr.
2 p.m.	0 "	0 "	0 "	0 "	0 "	0 "	20 "
4 p.m.	0 "	0 "	0 "	0 "	0 "	0 "	10 "
6 p.m.	0 "	0 "	0 "	1 "	2 "	1 "	40 "
8 p.m.	0 "	0 "	0 "	3 "	5 "	4 "	60 "
10 p.m. ...	2 "	2 "	2 "	12 "	16 "	14 "	600 "
12 m.n. ...	16 "	12 "	14 "	36 "	40 "	38 "	750 "
2 a.m.	25 "	31 "	28 "	61 "	55 "	58 "	5500 "
4 a.m.	30 "	40 "	35 "	58 "	52 "	55 "	3200 "
6 a.m.	20 "	16 "	18 "	42 "	30 "	36 "	2800 "
8 a.m.	14 "	10 "	12 "	25 "	21 "	23 "	900 "
10 a.m. ...	3 "	2 "	2+ "	4 "	6 "	5 "	210 "

Case II.—A. A., aged 19, brother of J. J. A. (case I). Patient in apparent good health. No history of any sickness for the last years and no complaint in regard to filariasis in the past nor at present.

This case is of special interest because of the fact that during the summer the patient had been sleeping in the same room with his brother, who, as above described, is affected with filariasis, and a possible infection was suspected. The blood examination of the case

Microfilaria in capillary and venous blood: In order to determine whether in the early diagnosis of filariasis the collection of blood from a vein would be of any advantage, two examples were simultaneously taken, one from the tip of the little finger and the other from one of the veins of the forearm of the same limb, with the aid of a syringe. The blood in each case was mixed with acetic acid solution.

The hour selected for the experiment was 2:30 p.m., at which time, it may be added, filaria, may be added, filaria embryos were not found in two fresh blood preparations. The comparative result obtained with the acetic acid method in five different counts is as given in Table IV:

TABLE III.

Case 2—Filaria Nocturna, 24-hour Cycle.

Hour of Collection	—Fresh Blood Preparations— 1st Slide	2d Slide	Average	—Dried Stained Film Preparations— 1st Slide	2d Slide	Average	—Acetic Acid Method— Per cc. Blood
12 noon ..	0 embryos	0 embr.	0 embr.	3 embr.	2 embr.	2+ embr.	50 embr.
2 p.m.	0 "	0 "	0 "	0 "	1 "	+ "	40 "
4 p.m.	0 "	0 "	0 "	0 "	0 "	0 "	30 "
6 p.m.	0 "	0 "	0 "	1 "	0 "	+ "	40 "
8 p.m.	0 "	0 "	0 "	4 "	2 "	3 "	100 "
10 p.m. ...	3 "	2 "	2 "	15 "	21 "	18 "	800 "
12 m.n. ...	20 "	32 "	26 "	40 "	50 "	45 "	2600 "
2 a.m.	48 "	50 "	49 "	62 "	78 "	70 "	6500 "
4 a.m.	62 "	52 "	57 "	75 "	80 "	78 "	5200 "
6 a.m.	40 "	32 "	36 "	60 "	55 "	58 "	2000 "
8 a.m.	14 "	10 "	12 "	38 "	26 "	32 "	1100 "
10 a.m. ...	5 "	3 "	4 "	12 "	10 "	11 "	350 "

TABLE IV.

Filaria Nocturna Larva in Capillary and Venous Blood.

	In Capillary Blood	In Venous Blood
1	90 embr. per cc.	10 embr. per cc.
2	60 " "	30 " "
3	100 " "	40 " "
4	80 " "	30 " "
5	70 " "	50 " "
Average 6	80 " "	32 " "

Conclusions: The above results clearly show:

(1) That filaria embryos are found in the peripheral blood at all times of the day and night.

(2) That the periodicity of filaria embryos in the peripheral blood is a matter of a relative number of embryos circulating in the blood and not a matter of absolute absence of them from the capillaries.

(3) That filaria embryos are found in the capillaries as well as in the venous blood, their number being probably always greater in the capillaries.

(4) That the acetic acid method as described, is an expedient and efficient proceedure in the early diagnosis of filariasis. By this method the embryos can be demonstrated in the blood as soon as the adult filaria reach maturity and begin to discharge them, which in all probability takes place before the obstructive symptoms of filariasis are manifested.

(5) Finally, since the acetic acid method gives a reliable result, regardless of the time at which the blood is examined, this method avoids the inconvenience of having to make the examination at given hours as usually recommended.

1. That embryos of F. nocturna or F. diurna are found in the peripheral blood at all hours of the day and night.

2. That the periodicity of filaria embryos in the peripheral blood is related to the relative number of them circulating in the blood, and not to an absolute absence of the embryos from the capiallaries.

3. That filaria embryos are found in the capillaries as well as in the venous blood, their number being probably always greater in the capillaries.

4. That the acetic acid method as described is an expedient and efficient procedure in the early diagnosis of filariasis. By this method the embryos can be demonstrated in the blood as soon as the adult filaria reach maturity and begin to discharge them, which in all probability takes place before the obstructive symptoms of filariasis are manifested.

5. Finally, since the acetic acid method gives a reliable result, regardless of the time at which the blood is examined, this method avoids the inconvenience o fhaving to make the examination at given hours as usually recommended.

OBSERVATIONS ON INGUINAL HERNIA.*

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We can hardly imagine a more inconvenient existence than the truss life of the average hernia patient. This is not altogether the fault of the truss, but is due to the fact that many of the trusses are fitted by drug clerks, who have not the remotest idea of the adaptability of the truss to the hernia. I have seen a truss for the left side worn out on a right-sided hernia. But even when trusses are properly fitted by those trained to sell them in our hot climate, if made of steel, they are subject to the erosions from perspiration, becoming rusty and soiled.

The man with a hernia is constantly handicapped when wearing a truss with a spring too stiff, and with pressure too great upon the inguinal canal. Many trusses tend to increase the very condition they are made to cure; we refer to the celluloid or hard rubber pad with a stiff steel spring that bores its way into the external ring, absorbing all the tissue, making the ring and canal more patulous, rendering the hernia opening larger, and harder to retain after it has descended into the scrotum.

The expense of a truss, particularly those that are made to order for $10 or $20, is objectionable, because it makes the wearer of such a truss a larger bill during a lifetime than the expense of a hernia operation.

The web or elastic truss is unsanitary, and cannot be too severely condemned, for its absorption of odors and perspiration and its inability in many instances to retain the hernia.

As said before, the fitting of trusses is too often referred to the druggist or his clerk. In a great majority of cases many of these drug clerks without previous training, or ever having seen a hernia, sell and pretend to fit trusses to the first patient that applies, and always the kind of truss which the drug store at that time happens to have in stock.

There is no more fertile source for quackery to exploit the public than in hernia cures and truss selling advertisements in magazines and newspapers. This is regardless of the fact that many hernias are so large and the patient's labor so strenuous that no kind of truss is sufficient to retain them. These hernias are liable to become strangulated or incarcerated in time, making a serious operation imperative, when a simple one in the beginning might have accomplished a radical cure.

We have often thought how much better it would be for the young patients suffering with hernia to be operated upon by a competent surgeon under aseptic conditions, rather than living a long hernia life, worried at all times with the inconveniences of wearing a truss.

In our hot climate the disagreeableness of a truss life can hardly be exaggerated, and yet so averse is the general public to any operative procedure that it frequently requires a family meeting (at least in some instances) to get the consent for an operation to relieve even a strangulated hernia.

If the public could only know how few deaths result from herniotomy in properly selected cases when performed by a competent surgeon, that relapses are the exception and not the rule, we would be able to accomplish much more in this line of surgery than we have ever been able to do in the past. This brings up the question of how many people have hernia. (Bull and Coley) found " in 33,600 cases of inguinal hernia, males to females, six to one; femoral, male to female, one to two and fourteen hundredths. Of 22,751 cases 5,554 or 25 per cent were in children

*Read before the Section on Surgery of the Southern Medical Association, at Hattiesburg, Miss., Nov. 12-4, 1911.

under 14 years, while 1,381, or 18 per cent of femoral hernias occurred under 14."

Generally speaking, the greater number of cases occur during the active period of life; that is, between 15 and 50 years of age.

While statistics may vary we may safely assume that one in twenty-five in the male and one in one hundred and fifty among the female patients is about correct.

With such a percentage of curable cases by a simple operation is it not a pity that this vast multitude of afflicted persons should be worried with wearing trusses of a thousand different makes and kinds during their lifetime?

The question often presents itself to the surgeon as to how early in the child's life may these operations be performed with safety, as it is known that a certain percentage of young people overcome this inherited weakened defect in the abdominal wall as they grow up. Another argument for deferring action is that children do not stand operations very well, and the tissue with which the hernial canal is to be closed is tender, and cannot be manipulated with as much impunity as in older patients.

Diagnosis—If from previous inflammation the omentum, mesentery, or intestines become attached to the hernial sac, or infection, or inflammatory conditions result from a misfitting truss, such complications might in some instances be mistaken for enlarged and inflamed lymph glands in the inguinal region.

In complete scrotal hernia you may have to differentiate from hematocele or hydrocele, which is easily done by the introduction of a hypodermic needle or small aspirator.

The cord is felt above the hydrocele at the external ring, but not so in hernia.

Varicocele is usually on the left side, and may empty itself in the recumbent posture; the worm-like feeling of the veins can hardly be mistaken for hernia. Sarcoma and lipoma are very rarely found in the inguinal canal. Light is easily transmitted through hydrocele, while hernia is opaque. So it is to be seen that hernia, as a rule, is very easily diagnosed.

Predisposing Causes Anything that increases intraabdominal pressure tends to produce hernia. Any opening through the abdominal walls, whether surgical, as in a laparotomy, or natural as the umbilicus, or the position of the round ligament and the cord, all leave openings, through which intraabdominal pressure may force out pouches of peritoneum and later hernial contents. Weakened abdominal walls around these openings are inherited in one-third of all hernias. We have known a succession of hernias to occur in grandfather, father and son, from this lack of development of muscles around these natural openings in foetal life. A long omentum or mesentery is often the "entering wedge" to the formation of a hernia. The wearing of a truss with a hard pad as in bubonocele enlarges the opening in the inguinal canal from pressure, thus actually predisposing to the formation of hernia, which it is really intended to prevent. So if a truss is imperative and water pad should always be used.

In very many adipose subjects the fat cells develop between the muscle striae, which is one of the reasons for hernia being so common in very fleshy persons. Habitual constipation, gaseous indigestion, chronic bronchitis or whooping cough, enlarged prostate, stricture and bladder stones, falling from a great distance, straining at heavy weights, violent sneezing or coughing are among some of the most common predisposing causes. All heavy work, as in farm labor, running and jumping, as practiced by school boys, the blowing of wind instruments; in fact, as said before, anything increasing intraabdominal pressure predisposes to the formation of hernia.

Strangulation—It is when the hernial sac is large, the neck constricted, and a large loop of intestine descends into the sac that this constriction takes place, the return flow of blood

is obstructed in the bowel, oedema, and inflammation supervening, bringing about pressure which retards the return flow of blood, causing the strangulation, which, if not relieved under anaesthesia in the Trendelberg position necessitates an immediate operation. Nearly all hernias are reducible when just forming, and only become incarcerated or impossible of reduction after some inflammation or infection has taken place from bad fitting truss or other cause, or after becoming strangulated. Very many apparently irreducible hernias may be returned to the abdomen by application of ice bags for a considerable time, followed by a general anaesthesia in the customary Trendelberg position. As a matter of course, it is always best in these cases to operate. I am only speaking of this method of reduction of hernia when the patient will not submit to the radical operation under any circumstances.

It is important to remember clinically that the posterior wall of some herneal sacs may be made of the continuation of the bladder, coecum or sigmoid; so in opening the hernea sac in the sliding variety of hernia bear these organs in mind. Double sacs of peritoneum, like the hour glass sac, are rare in occurrence.

The contents of the sac are more variable than the walls, for instance, the anterior wall of the bladder in obese and bulging cases is occasionally found in the hernial sac, as is also the appendix, ovary and tubes; in fact, in many large neglected hernias any of the contents of the abdomen may be found in the unusually enlarged sacs. The sac descends behind the epigastric vessels in direct inguinal hernia. The cord in front or to the side of the sac may be found in direct hernia.

Nearly every successfully operated case brings another patient. Every unsuccessful infected or recurring hernia retards surgery in general and hernia operations in particular. Every recurring case is not necessarily a failure on the surgeon's part, but a neglect of the patient to avoid early employment that predisposes to hernia in the first instance. Many abdominal walls are inherently weak about the inguinal canal; usually afte rhernia operations it is best for the subject to follow some light work; this is particularly true of old and flabby patients.

As said before, where the hernia is complete and the inguinal ring so large that it cannot be retained by any ordinary truss, the surest cure for such a case is assured by castration, but it is necessary to get the patient's consent as a matter of course before he takes the anaesthetic, provided it becomes necessary to go this far in order to insure no returns.

The best fitting truss may retain the small and easily reducible hernias, so many patients prefer this plan to a more radical operation; but there is the constant risk of strangulation at some future time or place when proper assistance is not obtainable. This is the fatal ending of many old hernia patients. Obesity in subjects should be reduced by walking exercise, massage, and the simplest diet. For breakfast a small cup of tea, a tablespoonful of milk, one lump of sugar, a slice of toast bread or cracker.

Dinner—One slice of bread and cracker, small piece of lean meat or chicken, one egg and vegetable, salad or apple, glass of skimmed milk, sour wine, or lemon water.

Supper—One fourth of small chicken, boiled or poached egg, slice of toast bread or cracker; any seasonable acid drink may be taken in moderation between these meals, but as little fluid as possible should be imbibed. This should preferably be light sour wine or lemon water. Under this diet and exercise the patient will lose from five to ten pounds per week. A very fat patient should walk from five to ten miles a day, varying the meals suggested above according to his own taste, but never drinking any liquids during meal time. Cold or hot baths with friction rubs may be added to this regime. All adipose patients should undergo this reduction treatment until the abdominal walls are largely rid of fat as our commonest

failures and recurrences of hernia operations are in our obese patients. Constipation and gaseous indigestion if present in any hernia case should be corrected before any operation is undertaken. Always eliminate all predisposing causes of hernia before any radical cure is attempted.

In all operations for strangulated hernia make a radical cure unless infection or gangrene render drainage imperative. If trivial heart or kidney complications render general anaesthesia inadvisable local analgesia or spinal puncture may be admissible in specially adapted cases. However, nearly all operable cases can safely take ether. Special preparation of the patient by abstaining from food, and having the bowels properly emptied and the operative field properly prepared so that infection and vomiting is improbable makes the prospect of a radical cure much better than when any of these details are neglected.

Without describing any particular operation for hernia with which you are all familiar we will simply remark in passing that after the usual three-inch incision is made over the hernial tumor and extended down to the sac the fat is best gotten rid of by a finger dissection with gauze.

The sac is usually found just above the cord and should be separated from it by gauze or blunt dissection, without injury to the spermatic cord with as little trauma to the soft parts as possible. The lower end of the sac is held up and opened. Any intestines confined in the sac are pushed back, while omentum, if found, is cut away, after being transfixed and ligatured; the sac is then followed up into the abdominal cavity, securely tied with a double catgut ligature; after the distil end of the sac has been cut away the stump is dropped back into the abdomen and usual sutures applied.

The neglect of any of these simple details may cause recurrences, and is our only excuse for mentioning them. The transversailis and internal oblique muscles are sewed to the ledge of Pourpart's ligaments by four interrupted kangaroo tendon, or catgut sutures.

The epigastric vessels are avoided by inserting the needle from within outwards through Poupart's ligament. The edges of the wound should be closely approximated by careful suturing or Michell clamps. The wound may be either hermetically sealed with a colodion and cotton dressing, or with a large pad of sterile gauze around which a figure of eight bandage is so placed as to exclude the possibility of any infection after the operation is finished. As to the mode or plan of operation we personally prefer the Bassini, as it transplants the cord (which is really the guide to the hernial sac) from the inguinal canal to a new position under the external abdominal muscle, leaving less probability of recurrence than in some of the other more complicated operations. The Bassini operation is easy to perform by lifting the cord after it is separated from the sac out of the way by a soft piece of gauze placed under it, and in order to snugly close the internal ring, putting two sutures of kangaroo tendon or catgut above the cord and three or four interrupted sutures underneath it will render the likelihood of a recurrence very remote.

The cord is thus transplanted to a new bed just under the external abdominal muscle. Many surgeons are just as successful with Ferguson's or Andrew's operation, which has the advantage of being easier to perform, disturbing the cord less and not so likely to be followed by atrophy of the cord or testicle.

Either one of these procedures is about equally effective in bringing about a cure, which in the great majority of cases is permanent, provided no great intra-abdominal pressure or heavy work is attempted by the patient in the near future. Some complete hernias are so large, remaining in the scrotum, that it is impossible to hold them up by any ordinary truss. To this class of patients a successful operation is a great boon. But in order to make a radical cure in some of these

cases it may be necessary to perform a castration in order to make the operation truly successful and to prevent any likelihood of a recurrence.

There is no class of surgical work that requires asepsis more than hernia operations. The final success with no recurrences depends upon the operation being properly performed and the wound not becoming infected. The operation should be done with gloves and with as little bruising and handling of the tissue as possible, with every other known aseptic precaution both before and during the operation. Carrying out the operative suggestions made above we have had a series of twenty cases all resulting in a cure, with no complications except an infection in one of the cases which necessitated a second operation. We have not heard of any serious result from an operation from hernia, though it is performed many times daily in the Charity Hospital and other institutions in New Orleans. The only serious consequences or results which have followed hernia operations have been in those cases in which strangulation had taken place, gangrene followed, necessitating a very serious operation of resecting the bowels, where a very simple or trivial operation would have relieved the case had it been performed at the proper time. As soon as the public is educated to the importance and relief of earlier operations in hernia as in appendicitis the better result for the patient and reputation for the surgeon.

ABDOMINAL DRAINAGE AND THRU AND THRU SUTURE.*

By DR. H. A. ELKOURIE,
Birmingham, Ala.

Anything that will furnish the remotest possibility for infection in surgical technique and procedure is universally condemned. Anything that will furnish a possibility to lower the vitality of a surgical patient is frowned upon and depicted as pernicious and harmful practice, and yet many are those who, in the guise of custom or in the protecting shadow of a notorious name, allow both the possibility of infection (independent of the existing infection, if such exists) and the possibility of lowering vitality.

Both the "thru and thru" suture and the "abdominal drain" ought to receive the universal condemnation of surgeons, with but few exceptions.

The disadvantages of "thru and thru" suture are numerous. Among the most positive objections, I may cite the following:

First—The possibility of transmitting infection from without, independent of existing infection in infectious cases.

Second—The possibility of conveying infection from without in clean cases.

Third—The possibility of overlapping one structure on another and thus permitting a weakened abdominal wall.

Fourth—Producing more tension on some layers of the abdominal wall and not enough tension on others.

Fifth—A possibility of cutting through the peritoneum and thus inviting the occurrence of hernia.

Sixth—Breaking off of a suture at both ends below the skin, and the necessity of a long infection and a running wound, ultimately to be cured only through the removal of such suture.

I know of but one advantage that may be mentioned in favor of the "thru and

*Read before the Section on Surgery of the Southern Medical Association, Hattiesburg, Miss., Nov. 12-14, 1911.

thru" suture: Where the patient's vitality is so lowered that, in the judgment of the operator, the saving of time will materially add to the chances of recovery, then, and only then, in my humble opinion, should the "thru and thru" suture be permitted.

Without a desire to shock the equanimity of this association, without a thought of wanting to be odd to invite attention, but with a firm belief, based on conscientious study, I declare that the abdominal drain should never be resorted to excepting in cases where the abdominal wall itself is infected or in infected operations above the waist-line.

I further declare that where drainage is necessary it should be done through a puncture or a slit in Douglass' cul-de-sac. This applies, of course, to operations below the waist-line only.

Every surgical procedure must be justified by its distinctive advantages as over other procedures. The application of the adage, "The survival of the fittest," is especially applicable to conditions affecting human life. It is, therefore, an axiomatic ideal and a justifiable propaganda to practice that which possesses the most beneficial merits. It is not radicalism nor is it censure to say that many of us do that only which is subscribed to and endorsed by our "superiors." And thus we become subservient to the dictates of others and utterly incapable to do our own thinking. We do this subconsciously or unconsciously. In each case it is a habit to be eradicated. There can be remarkable things accomplished if each surgeon in the profession will do his own thinking.

I will here enumerate the distinctive advantages of draining through Douglass' cul-de-sac where drainage is necessary in any laparotomy below the brim of the pelvis, and where the abdominal wall itself is not infected:

First—In draining through the cul-de-sac it is not necessary to have your patient in the semi-sitting posture or the Fowler's position, and thus you eliminate much discomfort to the patient and save a considerable lot of vitality and maintain a better equilibrium of the circulation.

Second—You eliminate the possibility of infection from without independent of the existing infection.

Third—You eliminate the possibility of hernia.

Fourth—You do away with the irritation and lacerations to the abdominal wall.

Fifth—You can allow your patient to get up and do her duties while yet draining—a feat you dare not do with the abdominal drain, and thus indirectly you are saving the patient much time and some funds in shortening the hospital price.

Sixth—You are permitted to close the abdominal wall in infected as well as doubtful cases, and feel comparatively safe that no peritonitis will follow.

I respectfully, therefore, submit that the "thru and thru" suture should be the exception, and the layer-to-layer suture the general rule; likewise the pelvic drain should be the rule and the abdominal drain the exception.

PELLAGRA.

An American Problem. By George M. Niles, M.D., Atlanta. Illustrated. Published by W. B. Saunders Company, Philadelphia and London.

Pellagra is indeed "an American problem." The author of this book estimated, several months ago, that there were then from six to ten thousand pellagrins in the United States. Probably a census taken now would reveal a total of nearly twenty thousand in various states, scattered from Maine to Texas, from New York to California. Dr. Niles gives the profession a condensed description of the disease as it is now known, together with the accepted theories and treatment.

His experience and opportunities for observation have been extensive, and he has given to the profession a work on pellagra, clearly and rationally written and so timely that it promises to become a classic.

Even now it is an "authority" which no Southern doctor can afford to be without. Then too the style is so admirable that it is what Horace Greeley called "good readin'." Order a copy, doctor, you need it.

INTUBATION.*

By JOSEPH J. WALLER, M.D.,
Oliver Springs, Tenn.

Mr. President and Gentlemen of the Southern Medical Association:

I deem it not out of order to seize this opportunity to lift a voice in behalf of the innocent children that perish annually without cause. The time was in the history of our profession when many things occurred as a matter of course; our power and ability to serve the needs of humanity were bounded by the limitations of our knowledge. Such is the case now, but possibilities are opened up on account of recent inventions and discoveries to meet righteous demands. Almost every practitioner ripe in experience can hear the wailing echo of Rachel weeping for her children, and will not be comforted because they are not. The decree of Herod went forth, and the innocent suffered and died; only those Providentially favored made their escape. It is a sad reflection that the Herodic ravage was allowed to scourge the infant world for hundreds and thousands of years, robbing the human family of its innocent jewels and joys, the angels of the homes.

It seems strange that in the great Providence innocent children and babes should be selected or allowed to suffer a death so horrible. Of all the different agencies operating to separate soul and body, I cannot imagine one more cruel than one choking its victim to death by degrees. Is it not because of its horrors that this method was chosen to torture the murderer, that his anguish might be felt and realized in his last moments as he enters his final abode? The feeling for humanity today is such that the swift work in the executioner's electric chair is replacing the strangulation of the hangman's rope; yet the innocent babe suffers it all. If we must go the way of all the earth—and truly we must—let means be what they may, spare our last moments of the agony of strangulation.

The slow fever, the deadly missile, the bloody moloch, or the gallows of treacherous Haman—save the shame!—would either or all be a far more desirable method of exit from this world than slow strangulation. Why for thousands of years did the little children fall victims to this form of deathly torture? Death on the gallows is soon over and easy compared with that of laryngeal strangulation. Why was the life-saving remedy so long coming forth? For the first ten years of my general practice I was ever and anon humiliated in defeat when I faced one of those horrible cases. Happy to say it is not so now.

The three most common types of diseases demanding intubation are severe cases of acute laryngitis, laryngeal diphtheria, and membranous croup. I am aware that this classification is calculated to draw the fires of criticism from my ultrascientific friends, but the theory is tenable if bedside experience be allowed. I repeat with emphasis that these three types of laryngeal stenosis are separate and distinct entities, either of which can and does, by its mechanical closure of the larynx, cause death. I have observed each of them clinically and know whereof I speak. But it is not always easy or possible to distinguish them *intra vitam,* nor is it necessary every time for proper treatment. From a therapeutic standpoint it is more desirable to have the pathology with its underlying cause made out so as to guide medication and other agencies employed; but, let the cause be what it may, the stenosis of the larynx is an entity of itself which must be met instanter so as to make it possible to do whatever else may be required in the general treatment.

*Read before the Section on Medicine at the Fifth Annual Session of the Southern Medical Association, Hattiesburg, Miss., Nov. 12-14, 1912.

I was called in consultation about a year ago and found a child gasping for breath from some form of laryngeal obstruction. The physician in charge said it was a question of diagnosis; if it was membranous croup, the child would die; if it was spasmodic croup it would not die. To which I replied that we were there to see that it did not die of either. The very idea of waiting for the child to survive or perish to ascertain what was the matter! The tube was introduced, the child got well, and the diagnosis has not worried me in the least to this good day. A living child is more desirable than a fine diagnosis written on a casket. It is amusing, but sad, to read the old books on practice; the perturbations enjoined were many and drastic, but the case generally succumbed. I have stood at the bedside with anxious friends and shuddered to see my futile efforts fail. Among the many agents employed (for their name is legion) were calomel, ipecac, the fumes from slaking lime, and various other fumes not unlike those from the infernal regions. God pity the child!

I have seen the child agonize for breath, turn black in the face, chew the pillow, roll from side to side, seize the bed rail, and stare with glassy eyes till the accumulation of carbon dioxide would benumb the nerve centers and the child weaken and pass away.

Consultation only divides or shares the burden and responsibility in these cases; it gives no comfort to the bereaved family, except that they did all they knew. Oh, now if I had those children back! The almost sure victory would hasten David to meet Goliath. A steady person to hold the child, one to hold the gag, and you may imagine the joy that would flash into that home. The blooming, rosy cheek would in a few moments supplant the color of the anxious, cyanosed face; the eyes would again brighten and meet again the mother's happy, hopeful look as she wipes away her tears and kisses her babe in joy. The benedictions of heaven are breathed upon the doctor who can snatch the angel of the home from the jaws of death and give it back alive into its mother's arms. The picture is not overdrawn; it is but a dim painting of a living reality that every doctor should at least once enjoy.

Under the old system of treatment 95 per cent of these cases died; under the new, 99 per cent should get well. Away with the old and rush in the new. In the tube there is salvation for these little ones, and woe unto the doctor who desists!

The technique in the management of these cases as taught in the books and schools is partly wrong, misleading and dangerous. No other treatment is so good as the one which leaves no doubt as to its efficacy. The one that saves is the best; the one that loses some is not so good.

Technique—Put a silk string in the crown of the tube, then sterilize the whole outfit; wrap the child in a sheet and pin it with safety pins so there can be no possible doubt as to its hands being secure. Let the second assistant hold the child in an upright position against his left shoulder. Now place the gag and entrust it to the first assistant. The first joint of the operator's left index finger must be protected by wrapping before he introduces it to feel for the glottis. This being located, follow closely with the tube on the introducer, and, when its point has well engaged the larynx, release the tube from the introducer and push it gently into place with the left index finger, letting the crown of the tube rest just above the vocal cords. These manipulations must be gentle and brief, not more than four or five seconds each, in case the effort has to be repeated. The most skilled operators frequently fail to engage the tube the first effort. The throat in each case has to be learned, and it is no reflection on the operator to have to repeat his efforts if he is working gently so as to not do violence to the inflamed parts.

When the tube is properly in the larynx the child will likely cough up a bit of mucous through the tube, after which the child should

breathe easily. The trained ear can easily recognize the peculiar musical sound of the air as it passes through a properly fitted tube; even the bystanders can do the same after they once hear it. In case of doubt, the child may be given some water, and if it swallows it all right, the tube is in its proper place. The mistake is most likely to be made in placing the tube in the oesophagus. Hold the string till you know. The authors who teach to remove the string after placing the tube make a great mistake. The only reason for removing the string is to appear ultrascientific and prevent the string from acting as a foreign body in the mouth. Under no circumstances should the string be removed till the tube comes with it. This is a very material point and demands emphasis. The child in a few hours becomes accustomed to the string as well as the tube and does not care for it. In case the tube becomes suddenly stopped up by a bit of membrane or thick mucous (as, indeed, it frequently does), the most skilled operator, even if he be at hand, cannot remove the tube quick enough to prevent strangulation; if the string is left in, the nurse can instantly remove it. The child must be kept continually bound in the sheet so as to prevent the child's getting hold of the string and pulling out the tube. This little inconvenience is more than outweighed in the safety which it promises. Removing the tube with an extractor from a struggling child is an undesirable job.

The feeding of the child is all important and easily carried out, as a general rule. The food must be liquid and given with the child's head lowered. A glass tube is desirable if the child can be taught to use such, and in most cases it can. If the child has teeth and is inclined to bite the tube a small piece of rubber tubing can be attached to the glass for the child's mouth. If the child cannot or will not attempt to swallow the simple method of gavage is easily carried out.

The nursing and after-treatment in these cases is very important. It is a gross mistake to intubate a child, then go away, and leave the management to an untrained attendant. A mistake in the management may cause the death of the child and wreck the reputation of the physician. If possible in these cases make a satisfactory arrangement to have the child properly nursed before introducing the tube. It is always better to intubate and then rush the child to an institution or hospital for proper care and attention. If the child is not too far from the physician in charge and an intelligent person can be secured and taught how to remove the tube instantly in case it becomes occluded, the child may remain in the home, but, as a general rule, the swift removal to an institution is as cheap and absolutely safe. A stay of three to five days is generally all that is required, and, if possible, let the mother stay at home, for her anxiety and meddlesome care in the presence of her child only suffice to attract its attention and make it fret. A wise nurse will soon gain the child's confidence and it will be content, a desirable object to gain in these cases. The string from the tube can be given sufficient slack in the mouth, then pulled upon the child's cheek and there fastened with a small bit of adhesive plaster.

Eternal vigilance is the price of life in these cases. The nurse who goes to sleep while attending one of these cases should be court-martialed. It may mean the death of a child the same as a sleeping sentinel cause the destruction of an army. Watch the child, watch its breathing, watch if it chews the string. If the breathing suddenly becomes very labored or stopped and the child turns dark in the face, the nurse must hastily run one finger into the child's mouth under the string for a fulcrum and pull the string with the other hand, thus removing the tube in three seconds, an operation impossible unless the string is left in situ. If the string is not secured on the outside the child may gradually take it into its mouth and swallow it. If the child should bite the string in two, lose no time but depress the

tongue till you can see the short piece of string, then pick it up with forceps and remove the tube to rethread and replace it.

The tube generally has to remain in three to five days, and in exceptional cases longer. The nurse should three or four times a day introduce her finger and feel for the tube in the larynx. It should barely be felt, and in case it be prominent between the vocal cords, gently push it down; this is easy. Ever and anon the tube should be removed, cleansed and replaced. It is not common that one time introducing will suffice in these cases.

As a general rule these little patients can talk in a whisper and can sometimes take food in the upright position without strangling. The relief the tube brings to the suffocating ones is pleasing to them, and after they become accustomed to the tube and string they will motion or call for it to be replaced in case it begins to choke after the tube has been tentatively removed.

It is not every time possible to know just how long a tube should remain. After all the alarming symptoms have abated the removal of the tube can be considered, but as a general rule the tube should not be taken out till twenty-four hours have elapsed after the symptoms have vanished. The first removal is always tentatively; no one can tell if it has to be replaced. As a general rule, if it does not have to be replaced in four hours, it can be dispensed with, but this rule is not inflexible, for I have had to replace it in one case after thirty-one hours—an exceptional case.

This operation has many advantages over tracheotomy. While possibly it may be more difficult to do and require greater skill for its proper performance, it is not a cutting operation. It is quicker done and quicker over in its management, and, above all, is safe. Not so with tracheotomy. The neophyte might rashly cut into the trachea and get in a tube when he would fail to intubate, but what about the result? It takes little skill to do a Caesarian Section (any one can find the baby, if it is there), but what about the outcome of the case? The operation that saves the most lives is the one to be chosen. Take no risk unless you are forced to.

The people have an idea that when one's throat is cut he must necessarily die, and they have no way of discriminating which way it is cut. Consequently, if a child dies after the cutting operation, the doctor must bear the blame, as "he cut the child's throat." Intubation robs them of this charge. As more or less hoarseness often remains for several weeks after intubation, this sequela should be previously explained. This operation is so potent for good and the saving of life that it should be thoroughly taught in all the medical schools before the student is allowed to graduate. The operation on the dead baby is all that the school could safely promise, but on the living the operation is much more instructive. I have seen some who could do the operation on the cadaver fail on the living subject. One holds still, the other does not. To be able to do this operation is imperative on the part of the general practitioner and specialist of today. Not only should the doctor know how to do it, but know that he knows and be able to deliver the goods. Self-confidence that he can do the work, resting upon the ground that he is a doctor—as a matter of course—is not safe. I have knowledge of a few such cases in which the child was allowed to die simply because the doctor rested in confidence that he would, as a matter of course, put in the tube when the critical time should come, notwithstanding the fact that he had never done the job nor seen it done. On trial he found it no easy matter. One of those who suffered this consequence and humiliation asked me what were the landmarks. The child died. Now, who is to blame? Some doctors evidently can never be taught to do this operation; some have such large fingers that they fill up the fauces of the child and leave no room for the instruments. In such cases the doctor should make known these facts and give time to secure the services

of one who is physically adapted to the job. By so doing the doctor will save his reputation in the family.

In conclusion, gentlemen of the association, I beg of you to awake to a live interest in this subject and its possibilities to save life. This scourge has lasted long enough and must cease. The children of our fair Southland are at stake and the sweet babes of Dixie must be comforted; Rachel's weeping must be turned into joy, and the stormy voyage of infancy must no longer be molested by such pirates as laryngeal diphtheria and membranous croup. Hookworm, pellagra and the other scourges of our Southland are being driven from our peaceful shores, and croup and diphtheria must be loaded on the scapegoats of ignorance and superstition and driven into the wilderness to languish and die. We have the remedies—antitoxin and the tube—and we can positively rob these diseases of their terrors, make childhood safer and mothers glad. Go back to your State associations, then to your county societies, and tell our good brethren of the South that there is a balm for our choking babes. They need not die, and woe unto him who sits idly by and allows it. Save the babies, and if we fall short in our ways, in that day, the gratitude of infancy and the benedictions of motherhood will rest gently as crowns of honor upon our weary brow.

DISCUSSION.

Dr. W. W. Harper, Selma, Ala.—There are two or three points in this paper which I think are extremely timely. I would rather be able to do an intubation than to do a Cesarean section, for we can always get competent help in a case of Cesarean section, but oftentimes the country doctor is by himself, in a place where he cannot get help, and if he is competent to do this operation, which I consider not an easy one, he will save many lives. I do not think there is anything more horrible than for a doctor to have to sit by and see these cases of laryngeal diphtheria die from the simple want of intubation. Before the use of antitoxin and intubation it was my sad fortune to see two children in one family die, one after the other, because I could not do anything for them.

I would take issue with the doctor in regard to membranous croup and laryngeal diphtheria, for in my opinion they are the same. I find it objectionable to keep a child bound up in a sheet or blanket for four or five days. It is better to cut the string, as I said, within the teeth line and tie a knot in it than to allow the string on the outside and bind the child's hands to the body. If you keep the string on the outside of mouth it is better to use elbow cuffs. Make cuffs out of pasteboard, place it around the elbow, and the child will not be able to bend its arms. This is a timely paper, and we doctors ought to wake up to the importance of learning how to do an intubation before we are called upon to do it.

Dr. Waller (closing the discussion).—I have very little to add to what I have already said. I know of no better method of treating cases of laryngeal diphtheria than by antitoxin in large doses and performing intubation when necessary. If we leave the string in the tube and unfastened to the cheek, the child may swallow it. I use enough string so that it is not out of sight of the nurse. The nurse can take hold of the string with her fingers and remove the tube in three or four seconds, if it is necessary to do so. If you do not produce relief instantly when the tube clogs, the child will die. There was an experience of that kind near me a few years ago, where the method mentioned by Dr. Harper of removing the string was followed. The doctor had used an O'Dwyer tube. The child coughed some mucus into the tube, which plugged it up, and the child died in a few minutes. The string should not be cut off short, but fastened where the nurse can control it.

In these cases we want to preserve a uniform temperature. These children are more or less restless. They want to be up, and if a sheet is wrapped about them close up to the neck and all the way down, fairly tight but comfortable, you can carry the child anywhere in that condition, and there is no question then about the child's letting the string alone. Even if the child should feel uncomfortable, what is that compared with the possibility of death? With this method you feel absolutely sure and safe if you have a properly trained nurse. Just any one cannot do it. They must be intelligent and taught how to look after the child, or they are not to be trusted at all. The mother, as a general rule, is not a good nurse in these cases. She is too sympathetic. I remember one case in which I had to separate the child from its mother for three days, so that I could have absolute control over the child.

A COLLECTION OF PAPERS.

Published Previous to 1909. By William J. Mayo and Charles H. Mayo, Vol. 2. W. B. Saunders Company: Philadelphia & London, 1912.

This book of 591 pages is a collection of most interesting papers published previous to 1909. The work covers a variety of subjects—extensive papers on intestinal diseases and surgery, on genitourinary surgery, on the surgery of the head, nervous system, neck, thyroid, etc., also addresses on subjects of general surgical interest, notes on surgical clinics, etc.

The work demands the highest praise. It covers many interesting points in many fields of surgery, is concise, and will be read with benefit by every surgeon.

ILEO-CECAL ADHESIONS (LANE'S KINK)

By W. KOHLMANN, M.D.,
New Orleans, La.

In recent years attention has been called, especially by Lane, Jackson, Mayo, Wilms and others, to ileo-cecal bands which may or may not be complicated with chronic appendicitis. The clinical symptoms may be almost typical of chronic appendicitis and may be easily mistaken for such.

Appendectomy in these cases has not been followed by the expected relief. Almost immediately after the operation patients suffer from similar symptoms. In many instances it is hardly possible to make a proper differential diagnosis on account of the similarity of the symptoms and the possibility of both pathological conditions being present at the same time.

The clinical symptoms may vary greatly in degree. There is pain and tenderness, more or less diffused, over right lower abdomen. During exacerbation of pain there is decided gas distension and increase of tenderness. There is no fever nor the acute disability caused by peritoneal inflammation. In the less acute cases we fnd chronic constipation, which requires large doses of purgatives continually, persistent feeling of distension and sense of fullness after eating.

These symptoms develop from interference with the peristalsis of the lower ileum and colon, gradually leading to persistent intestinal stasis. Demonstration of intestinal stasis shown in such cases by X-ray examination will in the future, without doubt, be of great assistance in making more positive diagnosis. Lane, who had a great deal of experience in these conditions, has shown the importance of the X-ray examination.

The bismuth, administered in the usual bismuth meal, reaches the lower ileum and cecum in about nine hours. The normal cecum is free of bismuth at the end of twenty-four hours, while in this disorder it may yet be found after a lapse of forty-eight to seventy-two hours.

A very typical case of the variety of the ileo-cecal adhesion, which is known as Lane's kink, came under my observation recently. Besides the previous history of no relief from appendectomy, a positive X-ray examination, which showed a very marked stasis of cecum and intestinal stasis, made the diagnosis more probable.

Miss W., 18 years old. Family and previous history does not show anything abnormal.

Present Illness—Was healthy up to attack of typhoid at 15 years; since then has not been well. After convalescence, began noticing pain in right and lower abdomen, especially after physical exertion. During winter of 1909-10, while at college, noticed during physical culture class sharp pains, always in right abdomen. These symptoms were considered of nervous origin, and gymnastic exercises were continued again the following year (1910-11).

The pains were more severe and forced patient to bed at times or to lie down for an hour or so. Pain also during long walks and after piano playing. Never fever during attacks.

In February, 1911, treated for pains and for constipation. This treatment was kept up for five months, and then patient was operated on in June, 1911, when appendix was removed. Was in bed four weeks previous to operation. Could not stand erect. Pains severe, aching in character; made worse by slightest exertion.

Recovered from operation in ten days. Returned home in July. Since then right abdomen has been "sore." In September the old pains returned, but not so severe. Constipation has persisted, outspoken type, always requiring large doses of purgatives.

For past month frequent belching, tasteless and odorless. No nausea or vomiting. Appetite has been poor. Fullness after small quantites of food. No heaviness or pain from food.

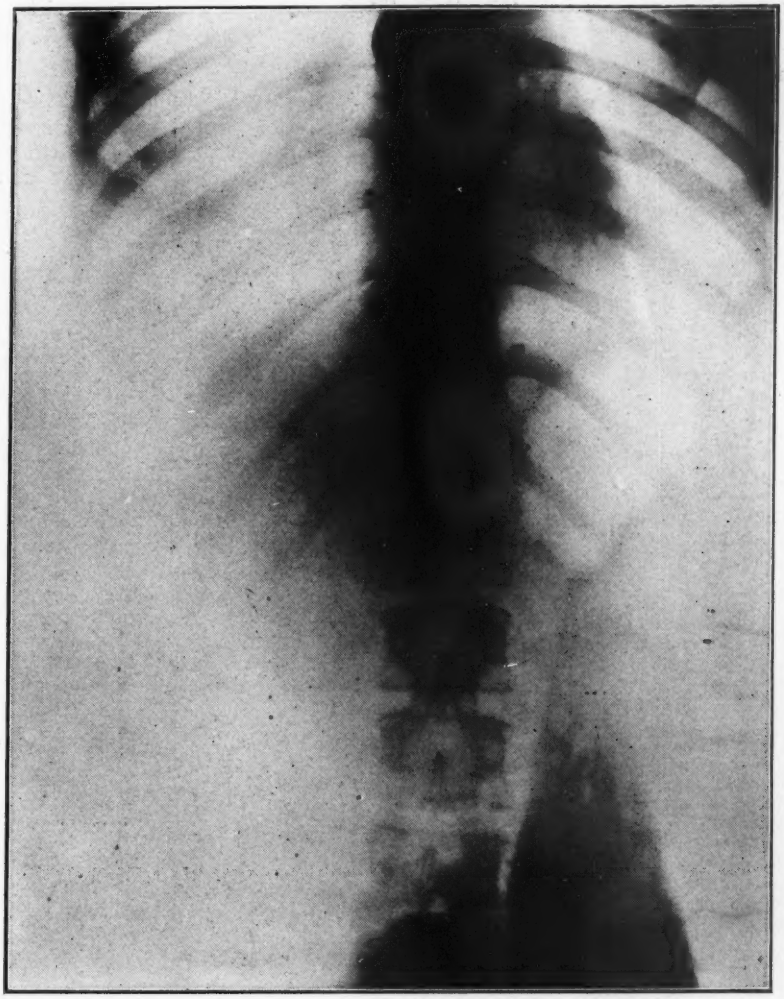

Plate No. 1 shows stomach elongated and fundus down in pelvis. Plate not low enough to show entire stomach. Radiological examinattion by Dr. E. C. Samuel, Touro Infirmary.

Physical Examination—Heart and lungs, negative. Abdomen relaxed. Pulsating aorta. In inguinal region some rigidity and much sensitiveness on palpation. A mass, about size of an egg, made out, soft and movable. Some gurgling noticed in this region. Right kidney descended two degrees; left kidney palpated one degree. On inflation stomach greater curvature two fingers' breadth below umbilicus. Apparently sausage-shape, vertical-type gastroptosis. No sensitive spot over stomach region.

TEST BREAKFAST (EWALD).

Quantity, 20 c. c.; chymefaction good; little mucus; no stagnation.

HO^1 positive.

adhesions (Lane's Kink) about two and one-half inches from the ileo-cecal junction, extending around the ileum. There was also found a band of adhesions binding cecum to

Plate No. 2 shows bismuth meal at ileo-cecal valve; the meal was six hours in passing this point. A small quantity has passed to the opposite side.

RECORD OF OPERATION.

Anaesthetic, gas and ether.

Median incision made about three inches in length, to be able to make a thorough examination, and on exploration found a band of

the abdominal wall at point of incision made in previous operation (McBurney). Other organs were found to be normal.

The adhesions were broken up and the raw surface peritonealized by suture. After di-

viding the band holding down the ileum, the latter could be lifted up to the extent of several inches.

Following the plan of treatment as advised by F. Martin, the patient was kept in Trendelenberg's position for five days after operation. Patient made good recovery. Appetite soon returned and bowels moved by small doses of aromatic cascara.

There is a marked increase in weight, gaining eight pounds first three weeks after the operation.

Case No. 2.

On January 2, 1912, Mrs. M. M. was admitted to Touro Infirmary. Nothing special in previous history; no children; no miscarriages. Began menstruating at 17 years; regular, but dysmenorrhoea at times. Pain began

Plate No. 2-B shows the meal in the rectum twenty-one hours after the meal was taken.

in lower right abdomen, occasionally becoming so severe that right thigh could not be moved. A mild, colicky pain manifested itself in same region after long walks or any exertion. After meals more than at other times there was a feeling of fullness in center of abdomen, with slight variation to right.

Bowels were constipated, never moving without a purgative. At no time was there any nausea, vomiting or rise of temperature.

Operation—Median incision. Genital organs were found normal. Retrocaecal appendix, which showed signs of chronic inflammation; this was removed. Lower end of ileum was covered by membrane which did not allow the ileum to be raised.

Treatment was the same as in Case No. 1. The patient has made an uninterrupted recovery.

BOOK REVIEWS.

PELLAGRA.

By Stewart R. Roberts, S.M., M.D., Associate Professor of the Principles and Practice of Medicine, Atlanta College of Physicians and Surgeons, etc. C. V. Mosby Company, St. Louis, 1912. Price, $2.50.

The subject of pellagra has been enriched by several excellent works within the past few years. The present work, by Dr. Roberts, is excellently arranged, well illustrated, and a real contribution to the subject. The symptomatology is well described and the chapter on treatment very good.

A standard work on pellagra should be in the hands of every Southern physician. The typical cases of the disease are readily recognized, but mild and atypical cases are constantly escaping diagnosis and lacking efficient treatment. Careful study of Dr. Roberts' book will do much to familiarize us with the disease.

THE SURGICAL CLINICS OF JOHN B. MURPHY, M.D.

Vol. II, No. 2, April 1, 1912. Published bimonthly. Price, per year, $8.00. W. B. Saunders Co., Philadelphia and London.

These publishers, recognizing in John B. Murphy one of the foremost surgeons and teachers of the day, have arranged to bring before the profession the verbatim reports of his clinical teaching at the Mercy Hospital in Chicago. These clinical reports are published six times a year, giving the history of the cases presented at the clinics, Dr. Murphy's comments covering the technique of operation, the methods of arriving at the diagnosis, and all the points involved in the living pathology in each particular type of case. The clinics are to be illustrated with skiagrams, photographs and sketches wherever necessary.

The wide diversity of cases reported in this number is illustrated by the following list of contents:

Ununited Fracture of the Tibia (Implantation of New Bone).
Arthritis of Knee Joint.
Ununited Fracture of Neck of Femur.
Ankylosis of Knee (Arthroplasty).
Ununited Fracture of Humerus (Transplantation of Bone).
Ankylosis of Hip (Arthroplasty).
Pott's Fracture.
Charcot Ankle.

In this volume Dr. Murphy's comments on the implantation of new bone are sufficient explanation for the demand on the part of the profession for the teachings of this surgical peer.

Whereas, The Clinics are in no sense to be confused with a systematic book on surgery, yet we are unable to recall any compilation of lectures or clinics that in any way compare in value or teaching force with the admirable portrayal of this man's first-hand comments, set forth in this most readable series of publications.

MUSCLE SPASM AND DEGENERATION IN INTRATHORACIC INFLAMMATIONS.

By Francis Marion Pettenger, A.M., M.D., LL.D. Sixteen Illustrations. Price, $2.00. C. V. Mosby Company, St. Louis, Mo.

It is a curious circumstance that through some unknown sympathetic relationship certain muscles show spasmodic tendencies and actually atrophy when tuberculosis attacks a distant and apparently independent organ.

For instance, a patient with tuberculosis of the bones of the skull "showed atrophy of the biceps femoris, with thickening of the tendon sheath, especially of the short head where it is inserted into the head of the fibula."

Also "in beginning apical tuberculosis the atrophy always appears to affect the trapezius muscle." It is not only atrophy that marks the effect of incipient tuberculosis of the lung upon muscles not apparently connected with lung tissue in any way. Certain specified muscles maintain a rigid condition of spasm, visible and tangible, as a result, and the skin is hypersensitive over specified areas controlled by disease of internal organs.

In this book the author undertakes to diagnose and locate diseased conditions of internal organs by a study of the surface of the body, not only over the diseased area but also in distant regions. For this purpose he depends upon refinement of inspection, palpation, percussion and ausculation, all of which are clearly detailed in this important and original work. The book is printed in octavo size on elegantly calendared paper and neatly bound. It contains 106 pages.

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Next Meeting Jacksonville, Fla., November 12, 13, 14, 1912.

Now for Jacksonville

On the 12th of next month there will assemble at Jacksonville, Fla., one of the most notable gatherings of physicians that has occurred in this country for a long time. Only the Atlantic City meeting last June exceeded in number the probable attendance at this convocation of the Southern Medical Association, and the significance of the latter is of equal importance. The Southern Medical Association is a normal and spontaneous development of the spirit that demands an opening for expression of its opinions, its discoveries and its will, and refuses to accept any undeserved subordination. Above all it is the expression of an unworded feeling that Southern medicine differs materially in many respects from that of other sections; that the relations existing in the South between doctors, and between them and their patients, are more intimate and sympathetic than is the case elsewhere, and that their problems are so modified by social, racial and meteorological conditions that they demand special and concentrated study. Hence the meetings of the Southern Medical Association have attracted the attendance and support of the highest authorities concerning the diseases most prevalent in subtropical regions, and their papers and discussions have enriched the pages of its official organ, the Southern Medical Journal. A glance at its front cover page from month to month, where the titles of original articles and the names of their authors are listed, shows that men whose abilities are recognized and honored in America and Europe, on the Isthmus and the Islands of the Eastern and the Western oceans have contributed to the general good their vast wealth of clinical and experimental knowledge under the auspices of the Southern Medical Association.

The entire program of the Jacksonville

meeting, though completed, has not been announced. The work of each of the four sections will require three full days for completion. The personnel of the officers of the various sections is sufficient guarantee that the papers read will be of the highest order, and each section will be provided with competent stenographers to report the discussions.

The general sessions will be of unusual importance to those who are interested in medicine generally, and of particular interest to those who are dealing with the problems in medicine and surgery that affect chiefly the Southern states. The Oration on Medicine will be delivered by Dr. L. F. Barker, professor of medicine in the Johns Hopkins University; the Oration on Surgery by Dr. Stuart McGuire, professor of surgery in the University Medical College of Richmond, and the Oration on Southern Medical History by Dr. Robert Wilson, Jr., professor of practice of medicine in the South Carolina State Medical College, Charleston.

The public will also be invited to the Wednesday evening session which will be addressed by Dr. J. A. Witherspoon, president-elect of the American Medical Association, and by Surgeon-General Rupert Blue, and Assistant Surgeon-General Rucker of the United States Public Health and Marine Hospital Service.

With such an array of medical talent, and with such lavish entertainment as will be provided by the Jacksonville physicians, few progressive Southern doctors can fail to wish to be at the meeting of the Southern Medical Association next November, there to debate the urgent and vitally important professional problems now pressing for solution, to meet and know the leaders of medical thought in every department who will be there, to press with renewed pleasure the hands of old friends and to garner on the very field of its growth the fruits of scientific debate for the healing of those who suffer.

Come to Jacksonville. All Southern railroads have given us excursion rates, the subsistence will be reasonable, the welcome enthusiastic and the days and nights crowded with profit and pleasure.

Come to Jacksonville on the twelfth of November! Bring Mrs. Doctor, and bring the young Miss Doctor also, that she may see the goodly stuff our Southern doctors are made of, and govern herself accordingly.

Come to Jacksonville!

The Southern Medical Association Endorsed

The following resolutions speak for themselves. The Orleans Parish Medical Society is perhaps the strongest county medical society in the South, and its membership comprises some of the most eminent medical men in this or any other country. Other county medical societies in the South would help the cause of ethical medicine by passing similar resolutions, and their members would profit greatly by joining the Southern Medical Association.

RESOLUTIONS ENDORSING THE SOUTHERN MEDICAL ASSOCIATION.

(*Adopted by the Orleans Parish Medical Society, August 26, 1912.*)

WHEREAS, The Southern Medical Association is fulfilling a useful function in affording the medical men of its territory opportunity for expression and for mutual improvement; and,

WHEREAS, It is cooperating with other organizations, both national and state, for the progress of the profession; be it

RESOLVED, That the Orleans Parish Medical Society endorses the Southern Medical Association and urges its members to join in its upbuilding.

Dr. Maurice Richardson's Last Address on Surgery

The second article in this number of the Journal is the "Jerome Cochran Lecture" for 1912, an annual function established by the Medical Association of the State of Alabama in memory of her great authority on quarantine and public health and the father of the system of medical organization now prevailing throughout this country.

Last April the lecture was delivered by Dr.

Maurice H. Richardson, of Boston, Mass. The subject was "The Gradual Elimination of the Preventable Disaster From Surgery." It is presented to the readers of the Journal with confidence of their appreciation for the privilege of reading the final message from one of the greatest men that America has given to surgery. As a literary effort in the field of medicine—using the name comprehensively—it is worthy of minute, analytical study. The language is chaste, free from technical intrusions, unmarred by unnecessary adjectives and grammatically perfect. The subject is treated in a simple but masterful manner. Above all, it teaches something, though that something may have been dimly realized by all of us. The whole work is typical of its author. It is perfect in the slightest details. The Journal wishes its readers could see the typewritten manuscript of the article. Every page was clean and neat. No corrections of any kind had been made or were needed. Even the paper on which it was written impressed one with its fineness of texture and elegant proportions.

Why does the Journal bestow such praise upon a single article? It is because the work typifies the man. Such as it *is* in excellence, force and completeness *was* Dr. Maurice H. Richardson, for he has gone to his final and well-earned rest, leaving a host of admiring friends to mourn and an entire profession to regret his loss. Dr. Richardson was found dead in his bed in Boston, July 31, aged 60 years. He was born in Athol, Mass., December 31, 1851, the son of Nathan Henry and Martha Ann (Barber) Richardson. He attended the public school of Athol and Fitchburg High School, and entered Harvard University in 1869, from which he graduated with the degree of A.B. in 1873. After a four years' course in Harvard Medical School, he was graduated in 1877. During his last year in medical college Dr. Richardson was assistant in anatomy under Dr. Oliver Wendell Holmes, occupying this position for two years. He was then made demonstrator of anatomy and served until 1887, and thereafter was assistant professor of anatomy until 1892. From 1883 to 1887 he was assistant in surgery; in 1895 he was made assistant professor of clinical surgery; in 1902 associate professor clinical surgery, and from 1903 until his death he was Mosely professor of clinical surgery.

Such a life is not lived in vain. The fruits of its years are like the leaves from the tree that grows by the River of Life. They are for the healing of the nations.

Surgeon-General Blue on the Problems of the Public Health

In the A. M. A. Journal for August 10 Dr. Rupert Blue, Surgeon-General of the United States Public Health and Marine Hospital Service, contributes an optimistic and thoughtful article entitled "The Problem of the Public Health." After a brief review of the history of colonial, state and national health organizations, he proceeds to discuss present conditions. He acknowledges the desirability of a national department of public health, but believes that "the great problem lies in the improvement of the state and local health agencies, in the extension of their powers, and the increase of their appropriations."

He thinks the key to the situation lies in the education of the public as to the necessity and usefulness of such organizations. This, he asserts, is already being accomplished, beginning in the high schools and culminating in the universities of several states. This condition will become general, and a generation will assume control who will consider, as Dr. Blue expresses it, every dollar spent on health boards "an investment and not an expense."

Dr. Blue recognizes the limitations of Federal jurisdiction, it claiming power over only such functions as could not be exercised by the states, such as maritime and interstate quarantine, and international communications and importations.

He says: "The health of this nation is, in the main, the health of the various states, and

to their care must be entrusted much of the machinery for its promotion. This is the most vital feature of the public health problem."

He says a few words in praise of present organizations of whose extent and perfection few people are aware. He says: "There is no nation in the world which has a more efficient sanitary corps."

He hopes for the development of a spirit of mutual dependence and aid as widespread as the nation and as strong as its patriotism—a cooperation expressed by the phrase: *One for All, and All for One.*

The Importance of Vital Statistics

Many physicians look upon the rendering of reports of sickness, births and deaths to the proper health officials as a nuisance, a useless formality and a waste of time and effort. Consequently the work is perfunctorily performed and so many omissions and irregularities occur that the resulting tables are almost useless. If the profession universally understood their real importance and value; if they realized that the business welfare of their communities was seriously injured by their neglect; that the future success of the children of their friends and patrons might be blighted in after years by their failure to properly report a birth or a death; that the work of the world is daily becoming more dependent upon these statistical reports, then the doctors everywhere would realize that instead of being a troublesome formality every report was a solemn duty owed to their country, their people and to themselves. And as a duty it would be recognized and promptly performed.

In this number of The Journal, Dr. Morris, in his presidential address, deals forcefully with this subject as it affects Alabama, and the papers by Dr. Booker, of Raleigh, N. C., and Dr. Wood, of Jackson, Miss., are devoted to it. No thinking man can carefully read these papers without being thoroughly convinced of the great importance of this duty, however skeptical he may have been in the past.

Biased Opinions

This Journal exchanges with another medical monthly of high pretensions, which is edited by a physician who has written several text-books rated as standard and used in schools of medicine. It contains a large amount of reading matter, much of which, being quoted from foreign and domestic authorities and treated with sensible comments, is valuable. But there is a reverse to this admirable picture. In the first place its advertising pages are defiled with the often refuted advertisements of firms whose names and productions appear in the A. M. A. exposure, entitled "The Great American Fraud." Advertisements which The Southern Medical Journal has rejected, though they would pay it five thousand dollars a year, at our present advertising rates, stare its readers in the face, sometimes being interleaved with reading matter of a more or less scientific character in order that the doctors who read that periodical may not escape seeing them. But another "fly in the ointment," and a most malodourous one in the opinion of the advocates of an independent medical press, is the intense bias the editor reveals in favor of the preparations of one particular house of manufacturing chemists. The house itself manufactures many admirable preparations, and has contributed valuable drugs to modern materia medica. In the ordinary course of advertising the praise of its preparations is all right.

When, however, a well written article describes in detail the treatment which has proved unusually successful in a certain series of cases, and highly lauds the medicines used, stating that the preparations were manfactured by X, Y, Z & Co.; and when in article after article and month after month appears the same laudation of drugs supplied by X, Y, Z Co., then the value of the clinical statements

appearing therein, admirable as they often are, is so weakened by the thought that interest may control judgment, that the thoughtful doctor hesitates to adopt any new or modified views thus advocated, and turns to other and perhaps less brilliant authorities for information.

The medical journal that is owned or controlled by any firm of manufacturers of medical preparations and does not publish the fact is seeking to obtain confidence under false prettenses. No doctor who respects himself and his profession should devote his abilities to securing patronage for his employers in any such way. Indeed, he should not be thus employed.

If he wishes to feel at liberty to inform the medical profession the X, Y, Z's elixir of so-and-so has proven, in his hands, better than any other, he should first be absolutely free from any business or financial relations with that firm, and should so state in his article. What a pity it is, however, that the many proprietary-medicine-owned journals find little trouble in securing M. D.'s of more or less renown for writers and editors. "The trail of the serpent" takes a wide sweep in medical journalism, but thank heaven it is *not* "over us all."

Neo-Salvarsan

Prof. Paul Ehrlich presents to the medical profession a new preparation with the above name. It is "a derivative of salvarsan," and he claims that it possesses several advantages over the original drug, namely:

It readily dissolves in water making a clear, natural solution suitable for intra-muscular injection. Larger doses are tolerated, and its efficiency is equal to that of salvarsan. It is provided in ampoules, and the price is the same as that of salvarsan. Whether the unfavorable features developed during the extensive use of salvarsan, amounting in many instances to a fatal outcome, pertain likewise to neo-salvarsan, remains to be seen. No matter how flattering the reports may be of its effects, physicians should never forget that, though the molecular elements of the drug are so united as to minimize their corrosive and prostrating nature, yet each half gramme of salvarsan contains enough arsenic to kill a strong man. Though its poisonous effects seem generally to be concentrated upon the spirochetae, yet a sufficient number of unfortunate accidents is on record to demand extreme caution in the use of this potent drug. The explanation that non-sterile solutions cause the fatalities is puerile. Many times the amount of the liquid vehicle are used every day, but it is only when salvarsan or some similar drug is given in it that the fatalities occur. No doubt the new drug is a great advance, but too much caution in its use cannot be observed, particularly when the dose is repeated after an interval.

Photographing the Invisible

Kenneth Taylor, M.D., of Minneapolis, has devised, developed and published a successful technic for photographing living microscopic organisms which seems remarkably simple. He prepares some glycerine agar, which is poured while hot over a slide, surrounding it with other slides to box it in, so to speak, and then when cool removes the glass slides, slices the jelly into small cubes, and it is ready.

Next drop on a clean cover slip a small drop of India ink, diluted one-half with distilled water, and inoculate it with the organism. Then carefully slide a little block of the agar to the edge of the slide so that it projects a little, place the edge of the inoculated cover glass under the edge of the block of agar and slide the block on to the india ink. It will quickly spread by capillary attraction until a fairly even film of ink will lie between the block and the cover slip.

Many organisms will proceed to grow in this film, which can be inverted and sealed over a cupped slide. Microphotographs can now be

taken in successive stages of growth without the distortion and injury consequent upon the manufacture of successive slides. It would seem that even moving picture films could thus be made by any good microscopist with proper camera and films. One of the most encouraging signs of the times is the rapid simplification of the means whereby modern scientists are achieving their marvelous discoveries. It would be hard to prophesy to what brilliant developments this practical device may be the introduction. But though modern advance be so rapid as to almost make one dizzy we cannot stand still. We must keep on moving towards the uncertain but tempting goal which is ever beckoning onward and upward the spiritual element known only to man.

THERAPEUTICS

APOMORPHINAE HYDROCHLORIDUM.

Apomorphine hydrochlorate as seen by the physician is usually in hypodermic tablets, stored in the small tubes made for carrying in the case of that instrument, and containing each one-tenth of a grain (0.006 gm.). When fresh the substance is a light gray in color, but gradually, especially if not well protected from light and air, it takes on a darker hue until, when the drug is old, the outside of the tablets are greenish black. A fresh tablet should dissolve in five drops of water, making a perfectly clear solution. It is the full emetic dose of the drug, and much more than is generally needed for that purpose. From the 1-20 to 1-15 of a grain (0.003-0.0036 gm.) hypodermatically administered will seldom fail to cause vomiting within fifteen minutes. Apomorphine is a typical central, or indirect emetic. A solution brushed upon the exposed medulla is instantly followed by vomiting, while if the vessels supplying the stomach be tied so that there is no communication between that organ and the medulla no amount of the drug in the stomach provokes vomiting. It is also mildly antispasmodic, hypnotic and anodyne. In doses of 1-100 of a grain (0.00064 gm.) in solution, given by the mouth every ten minutes until effectual, it is a sovereign remedy for spasmodic croup in children. One of the hypodermic tablets mentioned, dissolved in ten teaspoonfuls of water, affords the required dose in each spoonful If this solution is allowed to stand for a few hours it changes from a colorless to a grass-green liquid. It may, however, still be used, if necessary, though if other tablets are available perhaps a fresh solution should be made. The writer has frequently used the bright, green liquid with satisfactory results. It is said that a drop of diluted hydrochloric acid added to solutions of apormorphine prevents this decomposition.

Apomorphine possesses many advantages over all other emetics. It is not irritating to the stomach; it can be taken when other emetic agents are refused; it is prompt, certain and in proper doses safe.

As an hypnotic it is second only to some of the recent synthetic compounds. As an antispasmodic it is unrivaled, relieving the hysterical paroxysm promptly and pleasantly. For such purposes very small doses only are needed, 1-50 to 1-30 of a grain (0.001-0.002 gm.) hypodermatically administered and repeated every half hour if needed. Severe cases may require the smaller emetic dose.

The emetic action of apomorphia has been followed by alarming weakness amounting almost to collapse. It is our most sure and prompt expectorant. The syrup of apomorphine, of which each teaspoonful contains about 1-16 of a grain (4.0 to gm. 0.004) causes in such doses or even in half that amount free expectoration within fifteen minutes, which will not entirely cease for several hours.

Intestinal antisepsis isattainable,

if attainable at all, with the aid of

Thiocol 'Roche'

The dose: 5 to 20 grains, according to age, in hot water, an hour before meals, oftener if need be. Sample on request.

The problem of intestinal antisepsis besets you again. **Thiocol 'Roche'** can be safely recommended for the solution of it. Odorless, soluble, palatable, non-irritating to the most delicate stomach, injectable even, it **can be pushed to the point of saturating the system with guaiacol,** with obvious benefit in such conditions as

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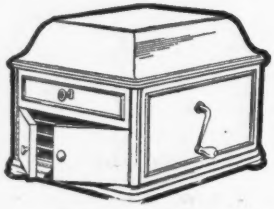

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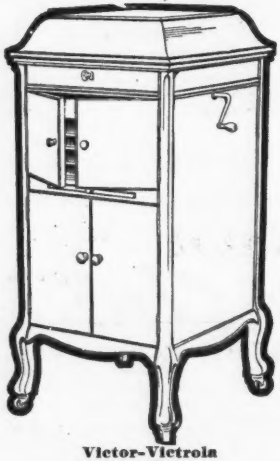
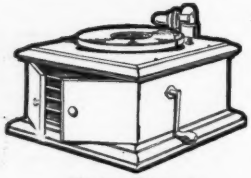


Victor-Victrola $150.00 Model.



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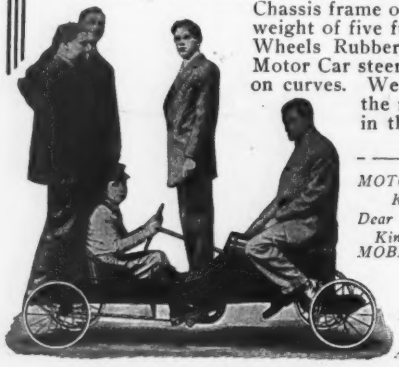

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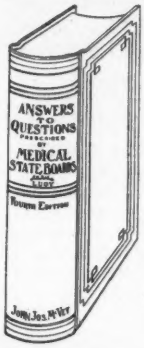

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